movements were more extravagant and exciting than those of the others; they 535
were allowed, and did, break out of line for extra flourishes that took their [825]
fancy while still remaining true to the spirit of each type of dance. A notable
feature of the dances is the identification with spirits and animals on the part of [776]
the dancers. Mistakes in drumming and dancing are thought very inauspicious for [777]
the well-being of the community. Although men and women do not dance as
partners, the dances give men a chance to show off their attractions, while the [832]
women give signs to men who impress them.

3. *Economics*

Production. The Orokaiva work force involves, in some ways, everybody from 464
the age he can walk almost until the day of death. The very young and the very
old are expected to make whatever contribution they are capable of. The 461
division of labour between the sexes has been the subject of enquiry by Williams,
Waddell and Krinks. A sex basis in the division of labour is obvious in a great 462
many activities, as the charts clearly show.[7] But even where activities are
'shared' between men and women, it is most common to see each sex group
work at a different aspect of the task; they rarely do exactly the same job.
Calculations by Waddell and Krinks show that the Orokaiva are fairly fully 464
occupied in terms of the number of weekly working hours. Their calculations
suggest that, given the present technology and social organisation, there is
comparatively little slack in the working week that could be taken up by cash
cropping activities on a major scale.

The working group is most frequently the household, occupied in the *pure*. 592
Sometimes close relatives work together on larger tasks, helping each other in
turn. Although old men do maintain their own gardens, they tend to receive
frequent help from sons, sons-in-law and sometimes sisters' sons. Co-operation 476
between men is also common during hunting and housebuilding. Co-operative
groups of five or more men or women are also seen occasionally, e.g. for making
roofing for a house, planting and harvesting yams. Co-operation of a total village 621
is rare, but there are co-operative fishing and hunting expeditions. Activities
related to feasting tend to be communal also.

Distribution. The Orokaiva have a subsistence economy where the bulk of 433
goods produced are consumed by the household of the producer. Though 437
patterns of exchange will take up a good part of the present work, it is necessary
to state at the outset that only a small percentage of everyday produce enters
the exchange system in any way. Waddell estimates that only 4.1 per cent of
taro produced in Sivepe is disposed of by sale, gift exchange or barter. While the
proportion is twice as high in Inonda, this is due to quite recent changes in the
economic network in that area. One is bound to agree with Waddell that food
exchanges, whatever their economic utility, are no great drain on Orokaiva
resources. Of the produce entering the exchange network only a minute
proportion leaves the village where it is grown. At a comparatively large feast I
saw in Inonda in 1967, I estimated that Inonda was giving away, at the very
utmost, 5 per cent of its annual production. As plantings are always made on a
scale sufficient for survival *even if the harvest is poor*, there will be a surplus of at
least 5 per cent after a good growing season. Unless the growing season is good, [527]

[TEXT CONTINUED ON PAGE 29]

623 working out a development policy, but rather of obeying a sacred formula that
657 came to the Australian authorities from a *dema*-like source and was then passed
177 on as a gift to the Orokaiva.

Are all these gifts derived ultimately, in Orokaiva estimation, from Jesus
829 Christ, or are there other *dema* figures as well to whom these gifts are ascribed?
[123] Who would they be? This is a hard subject for a white anthropologist to inquire into. Informants answer: 'We do not know. Nobody has told us.' The anthropologist feels uneasily that if anyone knows the source of Western wealth and power, it ought to be himself rather than his informants.

3. *New Exchange Cycles*

121 The image of post-contact history reconstructed here from statements by Orokaiva informants seems unduly dreamlike and idealised. This is because they are statements about the metaphysical starting mechanisms making social relations possible. Turning to the relationships themselves, I find that they are often marred by a severe conflict of interests and values. For the purpose of a brief overview, we shall consider relationships with representatives of three types of European-introduced institutions: church, commerce, and government. Following our theoretical scheme, we shall be especially interested in the objects that are exchanged in these relationships and in the mediating elements that make possible social exchange.

An employer of Papuan labour is interested chiefly in obtaining the
461 compliance of his workers by the payment of money. Usually he is not at all
466 interested in social exchange, but in a contract whereby he acquires the total work output of the worker for the period he is on the job. The Orokaiva,
829 however, regards all the work he does as part of a social relationship with the
437 person for whom he works. First of all, he expects that person to feed him while he is working. This is because he has been prevented by the person he is helping
177 from going to his own garden. The employer in New Guinea usually does feed his workers, subtracting the cost of the food from the wages he pays. But secondly, the Orokaiva, lacking a long tradition of wage labour, regards his work as a long series of gifts to his employer enabling him to claim return gifts. He does not think of his wages as being a total discharge of his employer's obligations. They were promised at the beginning, but since then many unpredictable things have happened: he has loyally looked after his employer's interests in a series of small crises; he finds he has additional urgent needs he did not envisage when he agreed to come to the job; he believes his labour has yielded his employer vast profits. As the Orokaiva understand a social partnership, events of this kind all create a claim upon the person who has received help. Thus, the worker keeps on pressing his employer most persuasively for extra gifts of various sorts, in addition to his wages. This pattern is found throughout New Guinea and is known as the *baksheesh* system. Employers often give in to the demands, hand out various extras, and allow for these costs in plantation budgets.[3]

466 The basic significance of the *baksheesh* has already been pointed out by
Mauss (1966: 250–5, 229–32); '*La chose ainsi transmise est, en effet, chargée de*
437 *l'individualité du donateur.*' It rests on a notion that both worker and
177

465 ing time. Humphries (1944 : 3) estimates the annual payment
466 per man to have ranged from a few shillings to £4 per year.

At that time some of the young single men were going out to work on plantations in return for food, accommodation and a cash wage of £6 per year. All plantations had to supply tobacco, soap, sugar and meat each week-end, and some paid wages every month (usually 10/-). But payment in cash and kind was not the only incentive to taking employment outside the
[461] district. Perhaps the main reason was the experience involved, for it seems to have become a necessary prerequisite to man-
[885] hood that a youth should have been away to work. The income acquired was used at least partly to supply his bride-wealth on his return.

245 From discussions with many Orokaiva people who
466 were involved in the plantations it seems that they regarded the scheme as an imposition whereby the people were required to plant coffee which the government commandeered and sold to its own profit. The annual cash payment was not viewed as a price per pound but as a token payment by government for their labour.(1) Official reports (e.g. P.A.R. 1933-4 : 27) noted that the people "complain loudly" when the payment was not up to expectations and in 1939 a demonstration occurred when the money paid out at Higaturu was thrown on the ground by the recipients.

245 The plantations were undoubtedly overstaffed and
[464] workers should not have been under any strain to complete their tasks. With 700 workers for the 242 acres of coffee there was an average of nearly three workers to the acre, though allowance must be made for their having to carry the produce to the depot and in some cases to pulp it also. At Ongoho there were six to the acre, though walking to and from the job must have

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(1) It is still quite widely held that produce prices are fixed by government, and that in the same way as Europeans are paid higher wages, they receive higher prices for
[461] their coffee. Humphries (1944 : 2) noted that the people regarded "working for the government" on native plantations as much less remunerative than working for a planter.

taken as much time as the work itself for some of them.(1) 245

Under ideal conditions each worker could probably
have handled one to two acres working mornings only. Such,
however, was the government's enthusiasm for instilling regular [466]
work habits (or at least regular attendance at the place of work)
that no roster system seems to have been worked out to ensure
that workers attended for the minimum time necessary to com-
plete their tasks. It is not difficult to understand that, though [461]
fear of imprisonment kept the project going, there was little
enthusiasm for it in the villages.

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(1) Girigirita and Oere were about an hour's walk each way from the coffee block.

Post-war community plantations (1945 - 62)

177 Shortly after the outbreak of war with Japan, government services were reduced to a minimum, coffee buying ceased
657 and the community cash crop gardens were soon abandoned.
[241] The Orokaiva area became the scene of intense fighting between
Japanese and Australian-American Forces during 1942 and
1943 and civilian government was not restored until 1945. No
further Commissioners for Native Plantations were ever
appointed but towards the end of 1944 an Agriculture Officer
(Mr. F. Shaw) was posted to Higaturu. One of his tasks was to
[461] get the pre-war plantations into production again. Most informants today say they had no wish to resume work on the
plantations owing to the low payments made pre-war, which
they assumed would continue. Their association with Amercian
forces had led them to consider their labour to be worth con-
[466] siderably more than pre-war rates. However the military
administration (A. N. G. A. U.) was then still in charge of the
Territory, and they were instructed to recommence work on the
plantations.

The pre-war system whereby every man worked on
245 the coffee each morning from Monday to Friday was resumed,
466 though supervision was transferred from the village constable
to a "coffee boss", one of whom was appointed by the government to oversee each plantation.

Penal sanctions were less severe than pre-war, the
usual punishment for failure to attend work being one month's
imprisonment instead of three, but before long the sanctions
465 were relaxed and few people were convicted. Income was
[434] higher, for whereas before the war the villagers were paid only
half of the proceeds of the crop, after the war they were paid
the full price.(1) Ongoho people inform us that annual payouts
after the war were £6 to £9 per man per year, and in addition

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(1) The Native Plantations (Papua) Ordinance of 1952 provided for the total value of the crop to be paid in cash to the producers. In practice, the policy had been followed for several years before that.

Community rice and cocoa projects

797 In 1948, the Christian Co-operative Movement was
formed by Father Clint of the Anglican Mission at Gona. The
movement spread spontaneously throughout the Orokaiva
country, though most of the co-operatives were only nominally
474 linked to the mission. (1) The main activity of the co-operatives
[241] was the growing of rice, but some grew subsistence foods also,
and others made copra. Although the movement was referred
[258] to as a co-operative, its agricultural activities were in most
cases communal: all participants were supposed to work at the
same time and to undertake whatever work was allotted to them
by the group leaders, and the benefits derived were to have been
shared equally. Moreover, at least some villages required all
resident adult males to participate in the scheme.

621 In most instances the village worked as the unit of
production, but in some cases several neighbouring villages
[243] worked together. Some large villages were divided into one or
more groups for the purpose of the community rice garden.
Each group had a committee of management and a chairman.

461 In general Monday and Tuesday of each week were set
aside for work on the community gardens. Official patrol re-
794 ports noted that the movement had taken on many aspects of a
cult. All stages of work were associated with an unusual
amount of religious activity and the tools and buildings of the
co-operatives were treated with great veneration. Keesing
(1952 : 7) speaks of an "absorbing mystical context" and of
rumours that Europeans would leave Papua as a result of the
co-operatives. An official observer stated that the people
considered "mere participation in the co-operatives would,
magically or mystically, quickly raise their status in all re-
797 spects to that of Europeans". Orokaiva people have pointed
461 out to us that cash cropping projects initiated by the govern-
ment had invariably failed. They felt that a mission project
might be more successful. Moreover, whereas they were un-
certain of the government's motives they felt the mission to be
"on the side of the people", for by introducing them to co-

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(1) The co-operative movement in this area is described in more detail in Dakeyne, 1963.

operatives they had given them the key to European prosperity. 461 [797]

Local enthusiasm was strong and a large acreage of rice was grown. However, no marketing facilities had been provided and although the mission had promoted the crop mainly 243 to supplement traditional subsistence foods, most Orokaiva 433 seem to have regarded it as a cash crop. They already had a plentiful range and volume of subsistence foods, and rice was not only harder to grow but also more difficult to prepare than the existing crops. Most of the rice grown was neither sold nor eaten, but was left to rot in the storehouses.

It is interesting to note that at Ongoho, despite the unfortunate experience with other community crops, all inhabitants of the same nine villages came together to plant a single rice plot. The project was organized by Haruma, the coffee boss, and the rice was planted on the land of the Akute'undi sub-clan. The crop was planted in 1949, and the rice was stored in a house built for the purpose. None of the rice was sold, a little was used for food, but most was left to rot. The experiment was not repeated. When asked why everyone combined to grow the rice instead of growing it individually, the people claimed that they had not realized at that time that cash crops could be grown by individuals. This view may seem incredible to a European, but we have heard it quoted in many parts of the Orokaiva area. Their whole experience of cash cropping had been of large scale enterprises, whether private European plantations, government plantations (which were established adjacent to many district headquarters), compulsory plantings under the regulations, or communal plantations under the ordinance. The introduction in 1955-6 of the concept of cash cropping by individuals was in a very real sense revolutionary.(1)

The idea of community economic activity was again 434 given a boost in 1949 when war damage compensation was paid 454 out. A small proportion was paid in cash, but most was deposited in savings bank accounts. Many government officers 474 then in the area noted that the money was being used to buy

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(1) It must be pointed out, however, that among the Orokaiva food gardening had always been undertaken by individuals. [241]

Conclusions

433 241 All the attempts to promote communal cash cropping among the Orokaiva have been economic failures. There is no evidence to suggest that they have been successful in any non-economic sense. Each of the ventures has been associated with problems of land tenure, work organization, income distribution and motivation. We will deal with each of these problems in turn.

423 [614] Problems of land tenure: When a sub-clan or other descent group has set aside land for use by a larger body which includes other descent groups, the donor descent group is recognized in terms of traditional culture as having residual rights to the land. These rights may still be recognized by the community even if they have been abolished by legal action in terms of administrative procedures (see pages 10 and 25).(1) A This is particularly so in cases where the setting aside has been the result of a degree of persuasion which appears to the people as compulsion. Strict government supervision can protect the legal rights but, if none of the parties are particularly anxious to have them protected, the supervision needs to be constant and [461] strict to be effective. Even then the results are unlikely to justify the effort required to effect the controls, for supervision by force results in very high overhead costs and seldom motivates workers to maximise output.

241 614 [592] We do not know of any instance of communal planting of cash crops by a single descent group on the land of that descent group. Traditionally all planting was organized at the level of the primary household, with some reciprocal assistance from other households for specific tasks at irregular intervals. If a single descent group did undertake clearing, planting and harvesting of cash crops jointly, tenure problems would be un-

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(1) A similar phenomenon was observed in the Ambenob scheme near Madang where the Administration purchased land from the villagers and leased it to the Local Government Council for sub-lease to individual farmers for cash cropping. The purpose of the scheme was to give security of tenure to the individual, but as both vendors and sub-lessees recognized some degree of residual right as remaining with the vendors, a sense of security has not been achieved. This is one reason why sub-lessees are in fact planting their cash crops more on their traditional lands than on their sub-leases.

A. [See Category 423, pp. 10, 25--Analyst]

likely to emerge. Problems of work organization and income 241
distribution may nevertheless arise.(1) 614

Problems of work organization: The communal plantations almost all involved several unrelated descent groups
which traditionally recognized no single leader. The Orokaiva [726]
did occasionally form larger ad hoc groups for warfare and sometimes for forest clearing, but these were temporary associations directed to the achievement of a short term goal. This of itself does not preclude the formation of new and larger groupings with unitary leadership provided there is either a strong desire for group action (and the necessary institutions to direct it), or strong external sanctions to enforce it.

The earliest communal plantings of coconuts and 245
rubber by the Orokaiva were carried out under instructions
from officials and sufficient pressure was exerted to ensure 249
compliance. The pressure was not, however, maintained and 657
the coconut and rubber trees were little cared for after planting. 466
Nor was harvesting for market enforced. Prices were low; the coconuts were seldom made into copra and the rubber was never tapped until the time of the war.(2)

The working of the coffee planted under the Native 245
Plantations Ordinance was strictly supervised. A village con-
stable was in charge of each local group, the European officer 657
in charge patrolled the area regularly, and defaulters were 466
severely punished. The communities regarded the whole
operation as one of oppression by the government. During the [626]
period that government sanctions were reduced and finally withdrawn, coffee prices were high (more than ten times higher
than immediately pre-war). Many people therefore wished to [461]
continue working the coffee gardens, but the community was not
traditionally equipped with adequate sanctions to ensure that [626]
individuals did their share of work, and the law specifically forbade the exercise of sanctions by any indigenous individual or group.

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(1) Since writing this we have been informed of a small (3 acre) communal tobacco- [249]
growing project which began at Soroputa in 1948 on the land of a single descent group.
It was reported to have functioned efficiently until it was destroyed by the Mt. [731]
Lamington eruption in 1951.

(2) For details of the war-time rubber-tapping scheme see Rimoldi, 1964.

241 657 [466] [625] [177] As Mair (1948 : 85) has noted, the fact that officials could fall back on compulsion gave them no encouragement to considering any alternative approach. The European officer's link with the people was through the village constable, and from what the Orokaiva tell us this line of communication operated in one direction only, for most constables felt that it was improper to query instructions given by Europeans, or to make suggestions to them. Not only was no attempt made to create local institutions which could have carried responsibility for community projects, but the imposed organizational structure did not provide the people with an acceptable model on which to fashion any new local institution. The vesting of all powers of sanction in the central government, moreover, forestalled the possibility of their spontaneous emergence.

465 212 Problems of income distribution: While the Administration paid each individual separately, no overt problem arose, but when government ceased buying and the coffee was sold to a trading company a lump sum was given to the person or persons who brought it in, usually the local coffee boss. Relatively few Orokaiva were literate (among the Asigi there were none) though it may have been possible to have made equal payments to all persons. However, as the community was unable to enforce equal work this was not feasible. Had there been a sufficient standard of literacy it may have been possible to operate on co-operative rather than communal lines (i.e. making payment in terms of work contributed) but in fact few people had the necessary degree of literacy and almost none had any knowledge of book-keeping.

461 [466] [433] Problems of motivation: The Orokaiva were never willing participants in any of the communal schemes (with the exception of rice growing in 1949). Some of them may have begun some of the projects willingly, but continued operation was only achieved by force. The money incentive was quite inadequate: most of the schemes produced no income at all, and those that did gave less (in cash and kind) than employment elsewhere. As already noted in the section on work organization, there was no social incentive to continued production.

241 It has been suggested that the pre-war community projects were merited in that they introduced the people to the

423 [614] clansmen or other kin of members of the group. But this takes the form of a request to these kin to attend and to bring the food with them and the group could never demand access to the resources of others.

Table 3

Rights to economic trees

	No. of trees	% of total
Planted by rightholder or his father on their own land	463	62
Planted by rightholder (or others) on land of another clansman in Sivepe or elsewhere	55	7
Planted by rightholder on land of matrilateral kin	22	3
Planted by others on land of his matrilateral kin	31	4
Planted by rightholder on land of affines	43	6
Planted by rightholder (or others) on land of cognatic kin of another clan	14	2
Planted within village sites	120	16
	748	100

241 f. Equipment

The hardwood dibbling stick, ti, is still used universally for planting taro. Other tubers are sometimes planted in mounds made with a shovel but all of the 4 shovels used by members of the sample had been found (at World War II Army dumps) or had been given to the owner. Every householder owned at least 1 bushknife for use in clearing, weeding and harvesting; all had 1 axe or sometimes 2, and at least 1 grass knife. A few of these tools had been received as gifts. Two householders had picks and 2 others had both hammer and saw, while 2 men had only a saw.

435 Total current replacement value of all these tools, including those found or received as gifts, is £50.6.0d.

The 2 shotguns owned by 2 men would cost roughly £30 each (apart from licences).

g. Labour

461 125 We conducted a pilot survey of the patterns of work among members of our sample for 6 weeks.[1] Approximate times were

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[1] From 10.12.62 to 20.1.63 a similar survey was carried out at Inonda (Crocombe and Hogbin 1963:61) and fuller studies by P. Krinks and E. Waddell are now being prepared for publication.

461 recorded every afternoon, when each able-bodied adult was asked
125 how he had distributed his working hours. Of the population of
50, 25 were able-bodied persons over the age of 16.[1] These fall
into 2 distinct categories according to age. Seven householders
are between the ages of 45 and 65 years, and the other 5 between
25 and 35 years of age. There were no younger men or boys over
15 years in the village. Five of the women were aged 45 or more,
5 were between 25 and 30, and 3 younger women whose husbands were
absent in employment, were staying with their kin in the village.
One Jegase woman was a total cripple.

857 Nine of the 24 children attend school and 11 are 5 years of age
or under. The rest, 2 boys and 2 girls in the 10-15 age group
[871] gave only intermittent assistance in garden work. The boys would
often go hunting but were not engaged in productive work as
regularly as their elders. The girls had a relatively heavy
schedule of domestic chores.

592 The household containing a nuclear family is the basic unit of
production and consumption. Members of an expanded family usually
make their gardens on adjacent plots and the men usually co-operate
in the heavier clearing work. Its members usually travel together
to their gardens, but each household then cultivates its garden
[462] alone. Apart from the harvesting, which is the task of women, the
division of labour between sexes in gardening activities seems to
be flexible in each household. Women assist in clearing under-
growth for new gardens and men join them in planting and weeding.
It will be seen from Table 4 that men spent nearly as much time
as the women in subsistence gardening during our survey. A

342 House-building is carried out generally by the householder and
476 any adult sons, with only occasional assistance from a neighbour
[462] or another kinsman. Wives sometimes help to prepare materials such
as sago thatch for the roof.

[824] Larger work-groups than these are seldom mobilized for subsis-
[461] tence activities.[2] One or 2 men can readily clear enough
secondary growth for their own needs and little co-operation is

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[1] Included among these were 1 man whose activity was restricted by tuberculosis, and another very old man. However, both maintained their own gardens.

[2] E. Waddell (personal communication) suggests that assistance with house-building is not 'occasional' but 'considerable' especially with making roofs; he also points out that large work-groups are assembled for harvesting yams (which do not need to be left in the ground for storage). Neither type of co-operation was in evidence during our short survey of work patterns.

A,[See Category 461, p. 28--Analyst]

342 required to build the short pig fence protecting the average
[476] garden. A house is replaced by intermittent work on construction
over a period of several weeks.

476 Co-operation with households outside the expanded family is
usually on the basis of assistance given for a day or two by an
individual to fulfil some kinship obligation or to help a
neighbour who is sick. Any assistance a man receives usually
comes from individual kin rather than a working party composed of
614 his agnates. This may be because Sivepe is one example of the
type of Melanesian societies where clans or their segments 'are
small and communities composed of several, permitting local
endogamy' and co-operation with local kin and affines dilutes the
strength of the unilineal group (Brown 1962:68).

461 The work patterns we recorded are summarized in Table 4. The
figure for the time taken up by sickness (including caring for
[164] the sick) was affected by the facts that during the survey 2
householders suffered from lengthy bouts of malaria (1 was
hospitalized) and that some women needed to attend to their sick
children; the figure for travel was affected by the absence for
several days of 1 householder and his wife who walked to Popondetta
where they had business at the District Office.

132 The extreme weather conditions experienced during our survey -
26.3 inches of rain in 1 month with 25 wet days followed by a long
461 period without rain - restricted both the range of subsistence
activities possible and to some extent the time available for them.
The amount of time devoted to subsistence and cash crop gardening
was appreciably lower during each of 3 weeks which were marked by
[797] the celebration of non-traditional festivals. Several villagers
were among a group of 100 people baptized as Anglicans at Sasembata
Mission.

795 During the week this occurred the women of the sample devoted
461 more time to preparing for and attending the ritual than to
economic activities. The men also spent more time than usual in
the village, several of them building or repairing houses. Most
of the men spent several hours watching the baptism itself.
Although the baptism differed from the life-crises traditionally
celebrated by feasts, a number of small independent gatherings to
mark the transition were held afterwards in the village by the
close kin of those baptized.

796 Religious observances were accorded a little more time during
the week of Christmas than in normal weeks. There were no
461 festivities within the village to mark the occasion and church
attendance was the only organized Christmas celebration except
for ceremonial at Saiho which a few Sivepe people attended on
461 Boxing Day. Several people were disabled by attacks of malaria
at the time but few of the others considered these 2 days as

461 regular working days. One man on vacation from regular paid employment worked both days with his wife in his subsistence garden but most relaxed in the village or visited kinsmen.

Table 4

Time patterns (6 weeks)
(Average hours per week)

	Men	Women	Both sexes
Traditional activities*			
Gardening	13.50	15.19	14.35
Hunting, fishing	1.29	1.19	1.24
Building	2.73	0.39	1.56
	17.53	16.77	17.15
Income-earning activities			
Paid work	2.60	-	1.30
Cash crops	0.79	0.31	0.55
	3.39	0.31	1.85
Non-economic activities**			
Sick	4.94	3.81	4.38
Travel	4.14	2.51	3.33
Religion	0.96	3.97	2.46
Council	0.41	1.44	0.92
	10.45	11.72	11.09
TOTAL	31.37	28.80	30.09

*Excluding domestic activities.
**For comparative purposes, we have recorded days taken up by non-productive activities, such as travel (including visiting and absence for reasons of other social obligations) as 7 hours, the standard used by Crocombe and Hogbin at Inonda (1963:62).

527 574 484 A tendency for men to regard the season as a time for renewing social contacts became more apparent in the week of the New Year. Although New Year's day was not specifically observed, the men who were well enough spent at least 1 day of the week visiting kin in other villages. Women too spent more time than usual away from the village but by New Year they were also resuming the routine of subsistence gardening. A general increase in movement between villages in the area appears to be usual at this time of the year. [438] Several villagers used to visit Kokoda at the New Year to trade traditional valuables with members of other tribes.

461 In 1944 attempts were made to revive the communal plantations but employment by the American military in the Inonda-Oro Bay area and other work for Allied troops made the people revise their ideas on the value of their labour[1] and resulted in a general lack of enthusiasm for the cash cropping schemes.

731 The eruption of Mt Lamington and the subsequent floods destroyed many villages and gardens and some 5,000 survivors had to be evacuated to refugee camps at Oro Bay and Ilimo. While the majority were resettled within four months, 1,500 people from within a 'danger area' of eight to twelve miles around the active crater were obliged to remain at Ilimo camp until July 1951, or live with clansmen elsewhere, and re-occupied their villages only over a period of years.[2]

731 823 464 Many Orokaiva viewed the disaster as divine punishment, in particular for their lack of co-operation with governmental and mission programmes,[3] and they were reported to deeply appreciate the extensive relief measures, including food, tools and medical services, provided by the Administration. Subsequent Administration reports remark on the willing co-operation of the people in voluntary road construction and their renewed interest in cash cropping.[4] However, once the need for producing food as a relief measure had passed, all staff of the Department of Agriculture were withdrawn from the District. Interest waned and was reported to be 'completely dead' in 1953.[5]

(d) Activities of the Anglican mission

797 Apart from very limited activity by Seventh Day Adventists in the Pongani area and Lutherans among highland labourers at Sangara, the Anglican church is the only mission working in the Popondetta sub-district. It first established itself at the Mambare River in 1900 and activities were gradually extended southward along the coast, but it was not until the 1930s that stations were established among the inland Orokaiva, at Isivita and Sangara. In 1965 the

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[1] Patrol Report, Higaturu, 1543/44; Crocombe 1964:21.

[2] See Rimoldi 1966:45-6 for a fuller description.

[3] Belshaw 1951b:242; Keesing 1952:18. However, some informants viewed it as punishing the Europeans (thirty-four of whom were killed) either for the hangings at Higaturu and Sangara, or for not having provided the Orokaiva with education and access to income.

[4] This was in part an expression of the high prices obtaining during the Korean War.

[5] DDA, Popondetta, DS-17-4-5.

454 considerable interest was shown, more than $14,000 being subscribed by the Orokaiva in the first six months of operation. However, it appeared during 1964 that this company might experience the same pattern of high initial interest and subsequent disenchantment, accentuated by the failure to pay a dividend at the end of the first year of operation.

439 Cocoa is purchased by both DASF and the Popondetta Cocoa Fermentary Ltd, a company financed entirely by European capital. Plans were being made in 1964 for the ex-servicemen settlers, both indigenous and expatriate, to establish their own fermentary.

366 [438] Weekly markets at Popondetta and Saiho provide outlets for subsistence produce but turnover is small and it is doubtful whether they contribute significantly to many individual incomes.[1] The principal buyer at Saiho is the Public Health Department and at Popondetta, the urban indigenous wage labour force, but in both markets the volume of transactions between subsistence-oriented villagers (primarily involving lime, smoked fish, areca nuts and fresh meat) is increasing.

435 461 [433] The Administration and the Anglican mission buy fresh foods brought to their stations. Since purchase prices were fixed by the Administration at 2c and the mission at 1c per lb,[2] and only a limited quantity is required, there is little incentive for the villager to increase production.

[241] In spite of an increasing commitment to cash cropping, rates of planting and levels of production fluctuate with changing prices and difficulties in selling certain crops. The purchase price for coffee has ranged between 9c and 32c per lb over the period 1955-65 while that for latex has fallen from a peak of 55c per lb during the Korean War boom to 9c per lb in 1965. A Citrus Marketing Scheme elicited much local interest in 1956-57 when fruit was purchased at 5c per lb, but it collapsed with the unwillingness of retailers in Port Moresby to handle the produce.

241 [464] (f) Conclusions

In spite of long participation in cash cropping, Orokaiva involvement is not high. Everywhere commercial production remains subsidiary to subsistence, individual cash crop holdings are almost

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[434] [1] Dakeyne 1965:109; Rimoldi 1966:8. Both show, however, that a few individuals earn worthwhile sums from marketing.

[437] [2] Bartered at this rate in salt, tobacco, razor blades and kerosene.

241 [464] universally small and there is no evidence to suggest that any village producers are employing labour to increase production.[1]

454 493 Monetary investment at the village level is low and there are no motor vehicles owned by individuals or groups of subsistence villagers,[2] although a number of villages now possess copra driers and coffee pulping machines.

407 The foregoing data suggest three main factors, largely unique to the sub-district, which may explain this situation.

464 (i) Labour shortages. Since pacification there have been repeated references to a high proportion of the adult male labour force being absent from their villages. Humphries (1923:203) refers to the Kumusi district being a 'famous recruiting-ground for plantation labourers' at the time of the first world war. Patrol reports after the second world war make periodic references to shortages of manpower in the villages and suggest that the regulation maximum of 30 per cent absent was at times exceeded (e.g. Higaturu 1-1543/44). The establishment of plantations under the ex-servicemen's credit scheme attracted much local labour at a time when returns from wage [461] labour were considerably higher than those from cash cropping. Many Orokaiva still prefer wage labour to commercial agriculture as a source of cash.

731 433 (ii) Consequences of the disasters. The effects of the war and the volcanic eruption served to accentuate the instability of settlement and fragmentation of groups. Resettlement after the eruption took several years in some cases and is likely to have deterred interest in planting commercial trees, at least in the directly affected area, which was the most densely settled part of the Orokaiva region. The findings quoted earlier[3] suggest that the initial Orokaiva adaption to the volcanic disaster was more active

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[1] Since our survey, one Inonda man has taken a job as a driver in Popondetta and employs a labourer at $3 per week to maintain his food gardens. For a description of four Orokaiva entrepreneurs with large holdings of cash crops see Crocombe 1967.

[439] [464] [465] [2] With the single exception of the indigenous ex-servicemen settlers, several of whom own vehicles; imported foodstuffs comprise a significant element of their diet and considerable use is made of outside labour, commonly kinsmen. Payment, however, is often nominal or in kind.

[3] See p.16.A

A,[See Category 731, p.16--Analyst]

438 are supplied by villages within two or three miles of the township
whereas the meat and fish may come from much further afield, since
435 their weight/value ratios are much higher than for vegetables. One
pound of pigmeat sells for 10c - the price of four taros averaging
eight pounds weight. Prices in the markets are standardised and
[434] not dependent on supply or demand. Those who sell meat or fish can
earn worthwhile sums, since a wallaby may fetch $4 but, in general,
marketing is a significant source of income only for people from
the less densely-settled areas or the coast where fish or wild game
are plentiful.

464 (iii) Wage employment. Several categories of wage employment
are available to villagers from time to time. The construction of
new all-weather roads within the sub-district has recently increased
the opportunities for temporary employment as unskilled labour.[1]

The Administration frequently makes contracts for the supply of timber or the erection of buildings from local materials and both Sivepe and Inonda profited by these during the survey period. The contract may be made with an individual, who pays the others from the proceeds, or a group.

There are some opportunities for casual employment on plantations,
but most planters prefer to employ workers from outside the Orokaiva
area because they are less likely to be simultaneously involved in
● [461] subsistence tasks and traditional obligations. Moreover, such work
is not popular with the Orokaiva, who prefer to work for relatives
holding blocks under the ex-servicemen's settlement scheme at
Sangara, Isavene or Girua. Individuals or whole families may stay
with relatives or friends in this way, sometimes for several months.
[465] No formal agreement is entered into and the villagers may work only
intermittently, in return for their keep and, at the end, a sum of
money and additional payment in kind (tinned meat, rice, sugar,
etc.). In some cases, however, regular payment is made at the
official casual rate of $3 a week. Work of this kind is popular
and during the survey there was almost always at least one person
temporarily absent from Sivepe visiting or working for settlers.
At Inonda, it was possible to work for settlers on the Girua blocks
while resident in the village.

[197] Anglican mission stations frequently employ school-leavers as
'medical orderlies' and 'nurses' in their clinics and hospitals.
[465] Standard IV or V education is required but the salary is normally
only $1 a month and few adults are involved.

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[491] [1] This applied to villages between Popondetta and Inonda when the road to Oro Bay was improved in 1963-64, and in 1964 work began on the realignment and improvement of the Popondetta-Kokoda road, which passes through Saiho census division within three miles of Sivepe.

461 Contracting and casual employment near the village are the most popular forms of paid work, since it is possible to maintain subsistence production and even cash crops at the same time.

166 (iv) Remittances. Remittances are closely related to the number of absentees. Few Orokaiva have been eligible for skilled work because of the limited educational opportunities available until very recently.[1] Those in employment almost invariably see themselves as being only temporarily absent from their villages[2] and therefore feel the need to maintain kinship links and settle obligations. They normally return to their villages for leave and, if married, may leave their families in the village in the care of relatives, since few employers provide married accommodation.

431 Single remittances are frequently of the order of $10 in cash or comprise gifts of clothing, tobacco, transistor radios and similar storebought goods beyond the financial reach of most villagers. The recipients say that they would like to reciprocate with gifts of food, particularly taro, but are precluded from it by the problems of posting or air-freighting heavy and perishable goods.

443 434 [438] (v) Other sources of income. Since Papuans became eligible to hold licences to trade in 1959, several Orokaiva men have established trade stores. Their stocks are fairly limited and include rice, tinned foods, sugar, tobacco and small household goods. Since 1963, most have obtained their supplies from Oro Ltd and many have shares in this company. A number of the stores have experienced operational difficulties on account of the pressures of kin for credit or special favours, but some of the Orokaiva owners in 1964 were operating at a profit. One such store was established in Inonda in 1963.

525 Gambling with cards is illegal but is nevertheless popular. Orokaiva villagers play among themselves for areca or matches, although they prefer to play for cash against plantation or road labourers and settlers. Villagers sometimes win large sums in this way.[3] A winner is usually expected to return some of his gains to

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[1] Dakeyne (1965:94), however, found a high proportion of skilled men amongst the Yega people, who have had the longest educational experience in the Northern District, with a school at Gona since 1910.

[762] [2] Only two of the absent Sivepe men had not sent presents home for several years. One committed suicide in 1964; the other stated categorically that he had no intention of returning to the village, but in fact did return on leave at the end of 1965.

[3] A Hohota man won $60 in one session with the Girua block settlers and Dakeyne (1966b:37) cites a case of a Yega man winning $86 from plantation labourers.

525 the losers. Villagers may also lose a fair proportion of their cash income through gambling.

461 (vi) *The use of cash*. Income is used for settling obligations,
direct consumption and capital savings. The first includes taxes
to the local government council, contributions to the mission and
marriage payments. These occur only occasionally, but their size
may require that an individual seek wage employment or harvest his
cash crops with the specific purpose of meeting such requirements.
The heaviest demands coincide with and immediately follow the
[651] period of most intensive cash crop production. Between about
[623] March and July the Higaturu Local Government Council collects its
annual tax of $6 per adult male and $2 per female. During the
[797] latter half of the year, the Anglican mission seeks contributions
to its Papuan Church Fund, in some areas recommending gifts of $4
[436] by men and $2 by women. Cash also circulates among villagers in
the form of small gifts as part of the 'normal' exchange pattern.

366 Most villages are within half an hour's walk of trade stores and during the dry season in particular, distinct recourse is made to them for food. Only very small sums are paid out at markets or to hawkers.

454 Opportunities for investing savings occur with two local companies, Oro Ltd and the OCGS, and with the major savings banks through their agencies. In spite of a required minimum shareholding of $5 and $10 respectively, the first two have elicited considerable support and are preferred to savings accounts because interest on the latter is considered too small.[1] In addition to shares, a considerable amount of money is tied up in village or clan savings accounts but there are few instances of this money being used to benefit the group.

241 Apart from the few trade stores and coffee pulpers, little income
is invested in large capital equipment. Herein, perhaps, lies the
[177] anomaly of commercial agriculture in the Northern District. In
spite of the long record of experimentation with various forms of
work organisation and tenure (admittedly, largely directed from
outside), the degree of economic development remains low when compared with the Gazelle Peninsula or parts of the Eastern and Western
[493] Highlands Districts. The proportion of cash croppers among villagers
is lower, as are the actual incomes derived from cash cropping and
there are no locally-owned vehicles (except those of ex-servicemen
settlers). Nevertheless, interest in commercial agriculture is

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[1] One expatriate planter who operates a savings bank agency expressed concern that withdrawals had exceeded deposits for the twelve months preceding mid-1964. He believed that the money was being used principally to buy shares in Oro Ltd.

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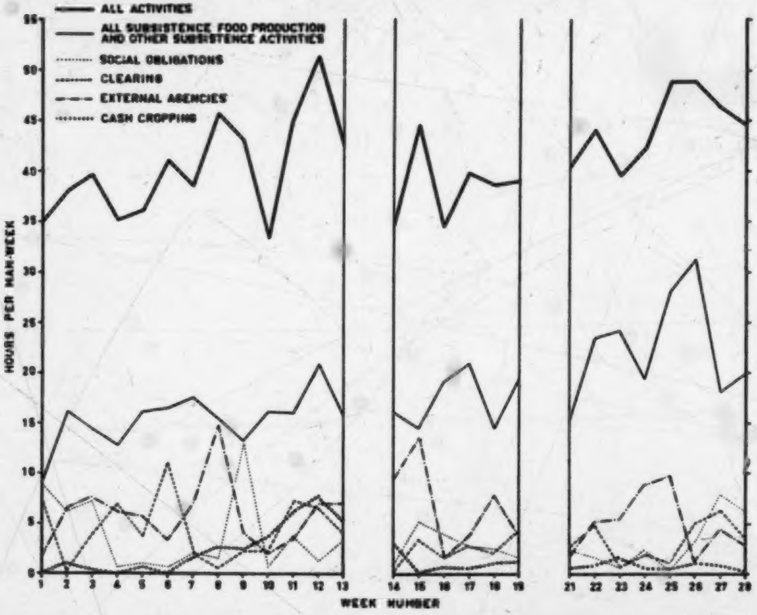
SIVEPE
WEEKLY PATTERN OF ACTIVITY - ALL ACTIVITIES AND SELECTED GROUPS

FIGURE 6:2



512 433 241 Such weekly variations can, in part, be correlated with rainfall (see Fig.6:5), less work being done in wet weather as virtually all Orokaiva activities are pursued out of doors; even cooking, weather permitting, is done in front of rather than inside the house. However, while the labour requirements of certain activities vary little from week to week, others are restricted to particular parts of the year or are in response to specific events, and it is these extraordinary activities which commonly account for the weekly variations in activity time.

(a) The subsistence sector

(i) Food production. Subsistence activities predominate, accounting for 30 of the 40.6 hours expended per man-week (see Table 6:4), and within these gardening is the most important single category involving 13.2 hours with bush clearing another 3.7 hours per man-week. Nine hours of the gardening time are spent on the cultivation of the staple food crop, taro.

[461] [262] [251] Although the data provide little evidence for any relationship between the pattern of gardening activities and climatic seasonality, this may be accounted for by the absence of a distinct 'dry' during 1964 (see Fig.6:4). The Sivepe people speak of the dry season as, traditionally, a 'time of famine' and intensification of work when their taro gardens are not producing and they are obliged to resort to wild yams and breadfruit for sustenance, together with the cultivated yams harvested and stored during the preceding wet season. While acknowledging that this has been substantially modified with the introduction of *Xanthosoma* and sweet potatoes, and the increasingly common practice of sago extraction, the fact that August 1964 proved to be a wetter month than December in Sivepe[1] results in a less well defined seasonal pattern being presented by the data than might otherwise have been the case.

[221] New garden sites are cleared throughout the year but preferably following dry spells of a week or more for successful burnings. However, there are few taro tops available for planting during the dry season itself. Table 6:4 shows that the most intensive clearing took place during period I, with 4.4 hours per man-week. This figure includes 0.8 hours expended on the communal garden and the time spent on clearing for subsistence therefore approximates more closely to the figure of 3.3 hours for period III, the early part of the wet season.

The time devoted to subsistence gardening tends to increase during the survey. However, in comparing taro, yam and sweet potato, distinct patterns of activity emerge. In taro cultivation

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[1] 15.42 and 14.17 inches being recorded respectively.

[TEXT CONTINUED ON PAGE 83]

244 Breadfruit trees grow around the village and in garden areas,
some being planted and others self-sown but preserved when garden
sites are cleared. All are individually owned. Harvesting is
relatively easy, the fruit being removed from the tree with the
[262] aid of a knife attached to a long stick. Sago apart, the bread-
fruit comprises a major element of diet during the dry months.

While the inland Orokaiva are essentially food-gardeners - a
433 fact dictated largely by the density of occupation where intensive
[224] utilisation of the forest has greatly reduced its plant and animal
resources - both hunting and sago-making are of limited importance
[512] and occupy 1.8 and 0.4 hours per man-week respectively.

Traditionally the Sivepe people claim to have hunted feral pig
224 high on the slopes of Mt Lamington but this has ceased now they
[136] 'have too much to do'. No such pigs are found in the bush adjacent
to the village but bandicoot, wallaby, cus-cus, flying fox, and a
variety of birds are not uncommon. Periodically domestic pigs
enter gardens whereupon they are usually hunted out and killed,
[411] either by the irate gardener or the owner of the animal. While a
spear may be used in the latter case, shotguns are now often used
or special hunting parties organised where a net is employed. Use
of the two shotguns held in the village is usually confined to the
owner and others who contributed to its purchase. Such hunting,
with the aid of a torch, is normally done on moonlit nights and is
most common in the dry season when flying fox are attracted to the
ripe breadfruit.

[512] During the survey, however, most hunting was done during period
III when 4.8 hours per man-week were recorded, the avowed object
being to 'stockpile' smoked meat for the annual Christmas feast held
on Sasembata mission station. Large intra- and inter-village group
drives were organised daily for two weeks, the activities being
initiated by the priest blessing the dogs. Wallabies were the
principal animals caught. During both weeks time spent hunting
exceeded 11 hours per man-week, or more than that devoted to taro
gardening. These drives were facilitated by a spell of unusually
222 dry weather.

252 Sago-making is a highly seasonal activity. In Sivepe, production
[221] is confined primarily to the dry season when 1.5 hours per man-week
were spent on it, rising to 6.4 hours in week 16 when only taro
[512] gardening, among subsistence activities, was of greater importance.
The work is arduous and is only undertaken with reluctance as the
[461] flour must be produced as quickly as possible following the felling
of the tree. It is one of the few activities not interrupted by
heavy rain.

[461] Because of the very high labour requirements, sago-making is
essentially a group enterprise and, not being popular, is only com-
menced when a number of families have little producing food in their

[TEXT CONTINUED ON PAGE 88]

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Plate 3. Sago-making - possibly the most arduous of subsistence tasks and invariably a group enterprise.

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Plate 4. Sivepe - women are responsible for keeping the central area free from weeds and refuse, as part of 'Council work'.

252 [461] gardens. If absolutely necessary it will be made without outside assistance, such being the case with one household with inadequate food supplies in its gardens in period III because the head had been absent for several weeks earlier in the year.

241 [262] (ii) Seasonality and the pattern of subsistence food production. While no significant 'dry season' occurred during 1964, the data gathered suggest that the cycle of agricultural activities is partly designed to allow for a dry spell at mid-year. During period II little taro or yam were producing and breadfruit and sago replaced these as the major contributors of carbohydrate to the diet. Yet an agricultural system which is characterised by a period of food scarcity was disrupted by unseasonally wet weather. Heavy rains deterred people from carrying out routine garden tasks, including food gathering, and probably accounted for the postponement of sago-making. On a number of nights during this period evening meals were not prepared because of rain and individual families went to bed hungry.

433 512 [432] (iii) Marketing of subsistence produce. This is only a minor activity amounting to 0.3 hours per man-week. Food crops may be sold either at the weekly market at Saiho hospital or exchanged for trade goods at Sasembata mission station, but their rates are so low that there is no systematic production of food crops for sale to these bodies.[1] Although more favourable prices probably obtain at Popondetta market, distance and lack of transport preclude the Sivepe people from selling there.

(iv) Other subsistence activities. Other subsistence activities comprise the preparation of tools and equipment and house construction. Handicraft work only accounts for 0.3 hours per man-week and primarily involves the preparation of axe handles, spears, traps and nets for hunting, troughs for fermenting coffee, a variety of mats and bags made from woven palm leaves, and various decorative items of a ceremonial nature.[2]

While mats and bags are made throughout the year, the other tasks are largely related to seasonal and specialised needs, the peak (0.5 hours per man-week) occurring in period III with the preparation of hunting equipment and ceremonial dress for the Christmas festivities.

Forty per cent of the time spent in the preparation of tools and equipment is taken up by ceremonial goods, 25 per cent by woven baskets and mats, and 20 per cent by traps, nets and spears for

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[1] See p.20.A

[462] [2] String bags have been excluded on the grounds that, although probably the most important piece of equipment, the women usually make them in the course of doing household tasks.

A,[See Category 436, p.20--Analyst]

Another 30 per cent of the time is devoted to traditional
535 dancing at events inspired by the external agencies, in particular
177 church festivals and public holidays; 18 per cent is devoted to what
might be called 'institutionalised parties', for example, the
[527] celebration of a church wedding or the opening of a women's club,
again events associated with the contact situation; and a mere 14
[178] per cent is devoted to feasting of a traditional nature, such a
practice now apparently being relegated to a minor place in Orokaiva
society.

All ceremonial events tend to be concentrated around Christmas when the gardens are in full production, and involving at that time as much as 6.2 hours per man-week in a single week (week 1).

461 (b) The external sector

177 All commercial production, together with those activities directly associated with the presence of the external agencies (for example, church services, formal meetings, etc.), fall within the external sector of the economy. Together they account for 10.6 hours per man-week, of which only 3.2 hours (spent in cash cropping and paid work) are concerned directly with the acquisition of cash.[1]

(i) Cash cropping. Most of the time spent in cash cropping is devoted to coffee production - 1.3 hours per man-week - although only five households are directly involved in it. The buying season
[221] is determined by the OCGS to coincide with the flush and extends from March to October. There is no off-season buying and coffee-producing activities are confined to this period, particularly the months of April through to July. Clearing of the gardens and any pruning are restricted to the start of the season to facilitate access to the trees. Most harvesting and processing is done early in the season, falling off gradually as stocks are accumulated, the main flush passes and the opportunity to sell is awaited.[2] While 1.9 hours per man-week were expended on coffee production for the whole of period I, virtually all activity was confined to the last six weeks when 4.2 hours were expended (2.0 hours on harvesting and the balance on processing). During period II only 0.5 hours were devoted to production, with a further 0.5 hours to marketing per man-week.

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[1] However, a further 0.3 hours per man-week are spent in marketing subsistence crops and products. See p.88.

[2] This reduction in the level of activity might equally be related to the initial sale of coffee, disappointment at the price obtained resulting in a marked loss of enthusiasm. Further, during period II, the labour requirements of the subsistence sector increase as do the demands made by the external agencies, and these factors may also influence the level of coffee production.

245 Coffee must be carried to Awala for sale, about one hour's walk
[442] away. Since assistance is often required, marketing becomes a
significant component of the total time devoted to coffee production. It is complicated by delays over the arrival of the buying
vehicle at Awala, shortage of cash to make immediate payments, and
inadequate transport capacity; growers are periodically involved in
[484] two or three journeys for the sale of a single load of coffee. Outside the buying season no attention is given to the gardens nor are
any ripe berries harvested.

249 While in theory rubber trees undergo a 'wintering' period of about three months (August to October), the communal planting is tapped on a rotational basis throughout the year by seven villagers, including three members of the sample. Table 6:4 shows a peak in activity during period III but this probably reflects the tapping order rather than other considerations and in fact two of the sample households tapped during this period. It cannot be considered as a diversion of activity from coffee to rubber since the two households in question did not exploit any coffee during the year. Marketing of rubber is less time-consuming than coffee as the factory at Awala accepts coagulum at all times.

•461 During period I an additional 1.0 hour per man-week was devoted to the communal cash crop garden venture, of which 0.8 hours involved removing regrowth which had occupied the area following initial clearance in 1963.[1] In the balance of the time a few cocoa and rubber seedlings were planted and weeded.

Twenty-four of a possible 32 adults participated in the communal garden, although 68 per cent of the total time expended was provided by 11 individuals from four households. The scheme was characterised by intensive activity during week 1, when 7.3 hours per man-week were expended, falling off rapidly to complete cessation within eight weeks.[2]

464 (ii) Paid work. If the abortive communal venture is disregarded, the village residents devote as much time to paid work as to cash cropping. However, only five individuals were involved in such work, three men erecting buildings under contract to the hospital at Saiho and two young people doing medical work at Sasembata mission clinic.

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[1] This venture thus largely accounts for the increased time spent in clearing during period I. See p.81.

[2] The initial display of enthusiasm may have been influenced by the recency of the researcher's arrival in the village, when the exact nature of his relationship with the other external agencies had not yet been determined.

461 [464] Although returns to labour from paid work are substantially less than from cash cropping,[1] medical work is popular among young people because of their participation in a group with common interests, while contract work, being more casual than most forms of paid work, enables most village activities to be pursued concurrently with it. An important consideration for the married person is that such work can be done while continuing to reside with one's family in the village.

512 177 [797] (iii) Other activities. Of activities associated with the external sector of the economy, it is the 'non-productive' which are the most time-consuming: 5.8 hours per man-week are devoted to the external agencies, 3.0 of them to the church. The proximity of Sivepe to an Anglican mission head station run by an expatriate largely accounts for this as church activities tend to be more highly organised and frequent than on an out-station, so much so that during the Easter church festival, 13.1 hours per man-week were absorbed by services (week 8). Similarly labour requirements, in terms of voluntary assistance in erecting and maintaining buildings, are far greater at a head station.

Church activities reached a peak during period II with the Feast of St Mary Magdelene, the visit of a bishop, and the reconstruction of school classrooms. During period III a marked decline was registered, largely due to the general resentment of the villagers at what they considered to be excessive demands placed on their time during the preceding dry season. It was felt these demands had conflicted with major village activities such as cash cropping and the increased urgency of the food quest at that time.

[797] Formal gatherings or meetings are a recurrent aspect of village life. Of the 1.3 hours per man-week spent at them, 42 per cent is in connection with the Administration - at census takings, court cases, etc. - and a further 26 per cent with women's organisations - the Administration-sponsored women's club and the mothers' union run by the Anglican mission. The balance of the time is divided between political, OCGS and Oro Ltd meetings and disputes within the village.

[466] [651] The local government council dictates that one day per week be spent on road maintenance and upkeep of the village area. It also requires that all adults present themselves, annually, for tax payments and that all births and deaths are registered. Altogether this council work amounts to 1.2 hours per man-week.

[432] While Sivepe is close to a number of trade stores, the people's limited requirements from them results in little time (0.4 hours per man-week) being spent in the purchase of goods.

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[1] For a detailed analysis of comparative returns to labour see pp.290, 292.

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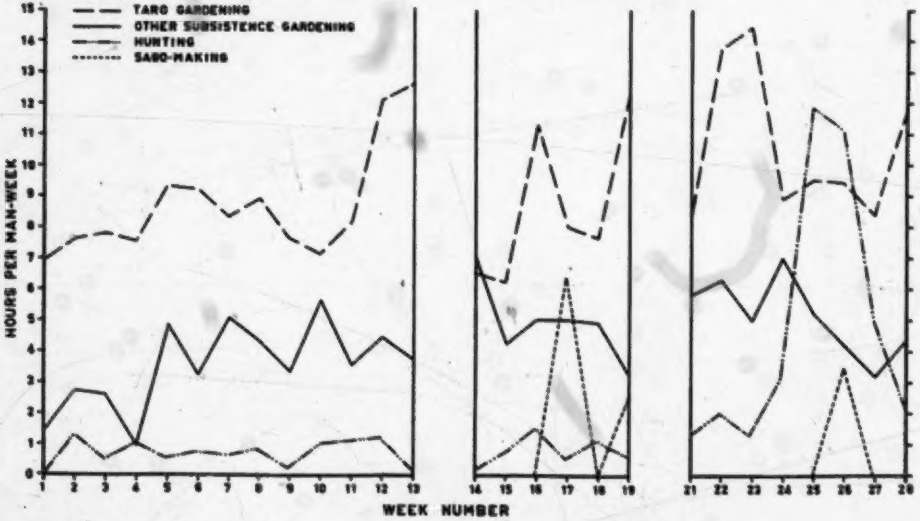
SIVEPE
WEEKLY PATTERN OF ACTIVITY-SELECTED SUBSISTENCE ACTIVITIES

FIGURE 8:3



512 [751] [164] Systematic data gathered on sickness refers primarily to activities of a preventative nature - the periodic infant welfare clinics and, in one week during period III, a TB survey involving X-rays and Mantoux tests accounted for 9.1 hours per man. However, in the survey as a whole, a mean of only 0.9 hours per man-week was incurred by sickness.

Activities of a minor nature account for an average of 0.8 hours per man-week and include sport, services rendered to the researcher and, during period III, the expenditure of 0.7 hours per man-week in the preparation of the new village site. By the end of the survey much of this site had been cleared and a number of individuals were planting 'catch crops' of taro and bananas.

461 433 Within the total Sivepe economy 'productive' activities account for 29.8 hours expended per man-week, or 73 per cent of activity time. However, the productive component within the subsistence and external sectors differs greatly, being 89 per cent of activity time in the former but only 30 per cent in the latter. The absolute insignificance of cash-producing activities should be viewed in this context, of the relatively unproductive nature of Orokaiva involvement in the external economy.

The organisation of work by households

592 461 Table 6:5 reveals substantial variations in both the volume and patterns of activity between individual households which, while they enable a distinction to be drawn between cash cropper and non-cash cropper, are largely explicable in terms of the structure and composition of the households themselves.

With a mean activity-week of 40.6 hours recorded, the individual household range is 29.4 to 65.3 hours. However, household 12, in which the 65.3 hours per man-week are expended, is somewhat aberrant in that it consists of a widowed woman with six children, the eldest of whom is a full-time nurse at the infant welfare clinic at Sasembata, to which job she devoted an average of 53.7 hours per week. The work accounts for almost half the time expended per man-week by the whole household. This, and the absence of an adult male, seriously undermined their ability to carry out essential subsistence tasks - so they only spent 11.1 hours per man-week on clearing, subsistence gardening and other subsistence food production compared with the sample mean of 19.4 hours. Significantly, by the end of period I the household had left the village, the mother to re-marry and the eldest daughter to reside on the mission station. By eliminating household 12 the range is reduced to 29.4 to 50.4 hours per man-week.

[887] At the lower end of the range are households incorporating the oldest people in the village. While probably less productive in their labour, these people are deprived of a much higher proportion

[TEXT CONTINUED ON PAGE 96]

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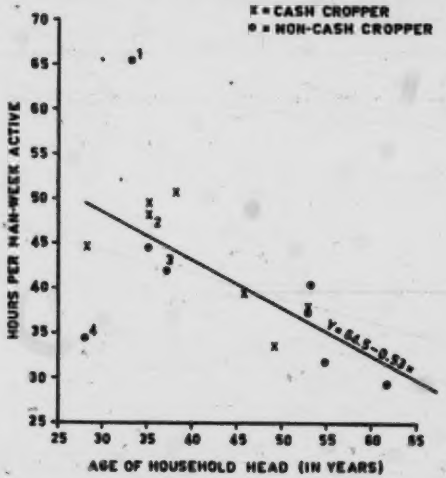
SIVEPE FIGURE 6:6
RELATION BETWEEN ACTIVITY TIME, AGE AND CASH CROPPING STATUS, SHOWING THE LINE OF AVERAGE RELATIONSHIP BETWEEN TIME AND AGE



ANOMALOUS HOUSEHOLDERS:
1 Divorced woman, eldest daughter in full time employment
2 Divorced woman
3 Recent arrival, temporarily linked by marriage
4 Temporarily resident only
1 and 3 left the village part-way through the survey

of available labour time through sickness.[1] All seven households headed by people in the 45+ age group are characterised by a below average activity week. Only one other household is below average (4), a couple who were resident for only 12.3 man-weeks, before

[887]

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[1] See Table 6:3. A

A, [See Category 164, p. 79--Analyst]

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leaving in search of employment on a plantation. These people had only recently arrived in the village and their brief term of residence suggests that their subsistence activities could not be considered fully operative.

The least active household, 6, consists of a single man, who is the oldest individual in the sample. While the time he devotes to the basic food producing and related activities (clearing, subsistence gardening, other subsistence food production) closely accords with the mean for the whole sample - 20.0 hours per week, compared with the mean of 19.4 - he devotes little time to other activities. For food preparation he is almost completely dependent on his married daughter living in an adjacent house. He therefore spends virtually no time in household tasks and his is the only household not participating in any cash producing activities.

The households headed by individuals under the age of 45 years are the most active. Furthermore, these households are almost invariably cash cropping ones. Fig.6:6 suggests a linear relationship between the amount of time spent active and the age of household head, although it should be stressed that the sample is small and the correlation coefficient is not particularly high.

There are many reasons for the inter-household variations in levels of activity including individual inclination and circumstances. In all cases a primary concern is to achieve subsistence. Householder 7 spent almost 2.5 times the mean time devoted to clearing as a result of his recent arrival in the village (and temporary linkage by marriage to Timumu clan). His decision to settle in his wife's village was largely motivated by its proximity to land over which he was a primary rightholder and which he had been prevented from exploiting previously by its remoteness from his paternal village. Similarly his wife (householder 8), prior to their separation, assisted him in the substantial task of clearing the site for their new food garden. While these two spent, respectively, 8.9 and 3.2 hours per man-week on clearing, two other households spent less than 1.5 hours per man-week. One was the widowed woman and young family who left to remarry during period I. The other was a somewhat senile widower who succeeded during the survey in attaching his married daughter's household to his own with the object of transferring responsibility for all gardening activities to his daughter's husband who would, in return, inherit all rights to his land.

Although the members of household 4 were, like householder 7, recent arrivals in the village, they spent little time in clearing because, as events subsequently demonstrated, they had no intention of remaining. But, displaced from the rest house by the researchers, they were obliged to erect a small house for themselves, hence the very high figure of 6.4 hours per man-week spent on other subsistence activities.

Table 6:5

Sivepi: activity patterns of households over the whole survey period
(hours per man-week)

Household no.	1*	2*	3*	4	5*	6	7	8	9*	10	11	12	13*	14	15*	All households Total	All households Mean	Cash cropping households Total	Cash cropping households Mean	Non-cash cropping households Total	Non-cash cropping households Mean
No. of adults	4	4	2	2	3	1	1	1	2	2	4	2	2	3	2	35		19		16	
No. of man-weeks recorded	92.0	79.3	53.7	12.3	60.0	36.6	17.4	26.6	30.6	41.7	73.4	16.7	40.6	62.0	32.0	712.9		436.2		276.7	
																(hrs)		(hrs)		(hrs)	
Clearing	3.2	3.8	3.0	3.3	1.4	6.3	8.9	3.2	3.5	3.8	3.2	1.3	3.1	3.0	3.3	2,614.7	3.7	1,447.9	3.3	1,166.8	4.2
Subsistence gardening	12.2	12.6	10.9	14.0	9.3	12.5	12.7	16.2	18.2	20.6	9.9	9.3	14.6	16.1	17.6	9,406.3	13.2	5,696.1	13.1	3,710.2	13.4
Other subsistence food production	0.3	0.9	6.2	1.1	3.6	1.2	0.3	1.3	4.5	0.8	2.3	0.5	3.9	2.9	4.2	1,788.3	2.5	1,305.9	3.0	482.4	1.7
Other subsistence activities	1.0	0.5	0.9	6.4	2.0	2.9	11.4	0.5	1.3	4.7	1.1	0.1	1.8	1.9	2.7	1,356.6	1.9	595.9	1.4	762.7	2.8
Cash cropping	2.1	1.5	1.7	0.3	1.8	-	0.1	1.4	4.4	0.3	0.4	0.3	2.9	0.7	2.3	1,119.5	1.6	989.7	2.3	129.8	0.5
Paid work	-	-	-	-	5.3	-	-	-	-	-	2.6	29.8	-	-	2.1	1,128.8	1.6	440.7	1.0	688.1	2.5
Household	3.8	5.5	4.9	2.9	5.3	0.5	-	9.5	7.4	4.3	3.2	8.8	7.8	4.7	6.7	3,795.2	5.3	2,646.6	6.1	1,148.6	4.2
Social obligations	3.0	2.4	4.9	3.5	3.0	1.9	3.3	4.9	3.6	3.9	3.7	3.0	3.7	3.1	3.2	2,433.2	3.4	1,433.9	3.3	999.3	3.6
Sick	0.9	0.8	1.1	-	1.0	0.7	0.1	0.8	0.9	-	0.6	3.6	1.2	0.3	1.3	615.1	0.9	444.2	1.0	170.9	0.6
External agencies	9.8	5.6	8.7	2.7	4.3	3.3	4.6	7.9	6.4	1.7	2.8	6.7	7.3	4.3	6.3	4,135.7	5.8	3,081.2	7.0	1,063.3	3.8
Other	1.0	0.1	2.3	0.1	0.7	-	0.1	0.8	0.3	-	2.0	-	1.0	0.7	0.9	601.7	0.8	388.4	0.9	213.3	0.8
Total	39.7	33.3	44.7	36.2	37.9	29.4	41.8	44.4	48.4	40.1	31.8	65.3	48.1	37.6	50.4	28,976.1	40.6	18,440.3	42.3	10,535.8	38.1

* Cash cropping households.

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All three households devoting less than ten hours per man-week to subsistence gardening had at least one member in paid work at some stage, suggesting that this latter activity might interfere with basic village tasks.[1] By contrast, increasing involvement in cash cropping does not appear to affect subsistence gardening activities. Household 9, with the heaviest commitment to cash cropping, expended 16.2 hours per man-week on subsistence gardening, well above the average.

The four households most concerned with other subsistence food production (all above 3.8 hours per man-week) are all cash cropping households headed by people under the age of 44 years. Three of them have direct access to shotguns and, with ready cash to buy cartridges, are frequent hunters. Likewise such younger men take the initiative for making sago when food is scarce.

Householder 7 spent 27 per cent of his activity time in other subsistence activities, uniquely in house construction. Having recently arrived in Sivepe he not only had to build a house for his wife and himself but, wishing to ingratiate himself with his affinal kin, spent a substantial amount of time assisting others in their construction work.

[m]

While virtually all households are involved in cash cropping the ones directly exploiting rubber and coffee are, as is to be expected, more heavily committed. Furthermore, the cash cropping households spend more time interacting with the external agencies and their involvement in the external economy is, in effect, broadly based.

With the exception of the old widower (6), the amount of time households devote to fulfilling social obligations varies little from the mean of 3.4 hours per man-week - all appear to be similarly involved in the network of social interaction.

There are, however, very substantial variations in the time spent on household tasks, the range being nil to 9.5 hours per man-week. These variations are a direct expression of differing age and sex compositions and the varying degrees of interdependence between households. So householders 6 and 7 are almost entirely dependent on others for the daily preparation of their food, while the greater time devoted by the cash cropping households (6.1 compared with 4.2 hours per man-week) is connected with the fact that the heads of such households are younger and have many dependent children.

In conclusion, where substantial deviations occur from the 'normal' activity patterns they are generally explicable in terms

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[1] However, paid work does not appear to conflict greatly with other subsistence food production, because of the more irregular nature of the activities.

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of individual circumstances rather than degrees of specialisation. While cash cropping households are clearly more active than the others, the substantially greater time they devote to the external sector accounts for the differential and they are no less active within the subsistence sector than their non-cash cropping counterparts. This is clearly demonstrated if household 12 is excluded from the calculations.

Table 6:6

Sivepe: contrasting activity patterns of cash cropping and non-cash cropping households*
(hours per man-week)

	Subsistence sector		External sector		
	'productive'	'non-productive'	'productive'	'non-productive'	Total
Mean	26.7	3.4	2.5	7.5	40.1
Cash croppers	26.9	3.3	3.3	8.8	42.3
Non-cash croppers	26.7	3.5	1.2	4.9	36.3

* Household 12 excluded.

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The division of labour

(i) By sex. Although there is little variation in length of activity week between the sexes, the men distribute their time more evenly through a broader range than the women who tend to confine their attention to a few specific tasks (see Fig.6:7). Sixty-one per cent of the women's time is devoted to subsistence gardening and household tasks compared with only 29 per cent for the men; however, the latter give substantially more attention to clearing, other subsistence food production and other subsistence activities than the women (11.5, 10.9 and 8.6 per cent respectively compared with 6.7, 1.6 and 1.1 per cent) while retaining subsistence gardening as quantitatively the most important of their grouped activities. Consequently the broad allocation of time between subsistence and external, productive and non-productive activities does not differ substantially for the two sexes; the men spend 69.8 per cent of their time on productive activities and 70.3 per cent on subsistence and the women 76.3 per cent and 77.0 per cent respectively. Rather it is a matter of the women concerning themselves essentially with the daily routine of harvesting and preparing the staple foods for consumption while the men turn to the more irregular, and frequently more arduous tasks such as house construction, hunting and sago-making. In part, no doubt, this pattern reflects the formal authority structure in the household in that the men delegate responsibility for meeting routine needs to the women while they

[TEXT CONTINUED ON PAGE 101]

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Table 6:7

Sivese: the division of labour by sex

	Men	Women
Total hours active	13,934	15,041
Total weeks present	349.7	363.1
Mean activity week	39.8	41.4

Activity	Total hours	Percentage contribution*
Men		**Men**
Rubber - harvest	157.4	100
Recreation	194.7	97
Hunting	1,289.3	93
Preparation of tools and equipment	198.1	91
Church work	182.0	88
Construction	1,160.5	87
Coffee - market	77.9	85
Other crops - plant	41.8	84
Sago-making	319.7	81
Yams - plant	226.4	81
maintain	45.3	79
Purchasing	273.6	77
Taro - plant	1,714.9	75
Social obligations - other	732.7	73
Women		**Women**
Sweet potato/yam - market	31.2	100
Cooking	3,442.0	97
Sweet potato - harvest	900.2	92
Care of the sick	172.5	90
Taro - market	34.3	90
harvest	2,133.4	87
Washing	117.5	75
Both		**Men**
Rubber - market	36.1	66
Fencing	45.7	64
Coffee - harvest	353.1	62
Miscellaneous	260.6	62
Clearing	2,614.7	61
Coffee - maintain	74.5	60
Social obligations - marriage	32.7	60
visiting	873.9	56
Paid work	1,128.8	56
Other crops - harvest	1,109.0	54
Sick - personal	442.6	53
Yam - harvest	412.6	53
Coffee - process	398.4	53
Collecting firewood	234.1	52
Social obligations - mourning	783.9	51
Other crops - market	66.9	51
Church services	1,946.2	46
Meetings	898.7	44
Fishing	165.0	44
Council work	824.2	42
Taro - maintain	2,551.6	37

* Where one sex carries out more than two-thirds of the work and where the total amount exceeds .01 per cent (29.0 hours) of the total hours active for the whole sample.

concern themselves with the prediction of future needs, or with the catastrophic aspects of the food cycle, and therefore with activities directed towards fulfilling these.

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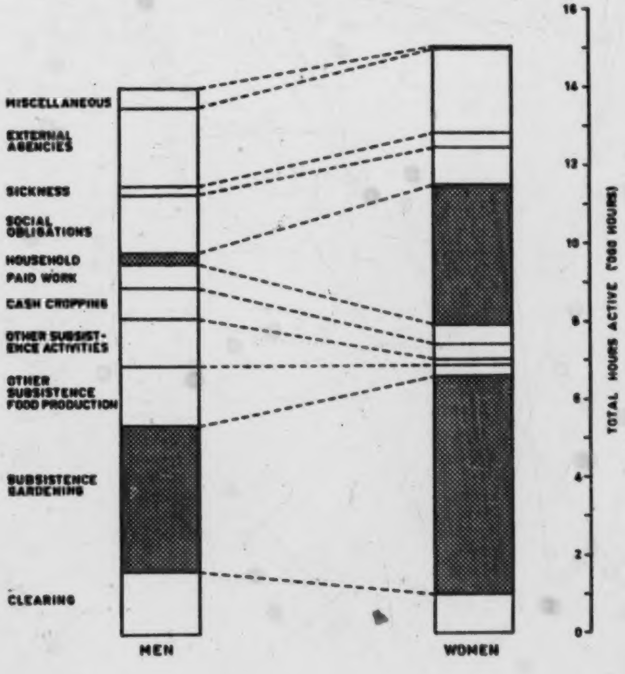
So, at the level of specific tasks, a clearer division of labour emerges, although even here there are few important activities exclusively the concern of one sex as Table 6:7 demonstrates. While subsistence gardening is largely the women's concern two tasks

SIVEPE
DISTRIBUTION OF TOTAL ACTIVITY TIME BY SEX FIGURE 6:7



462 predominate - the maintenance and harvesting of taro - which together
account for 22.9 per cent of their activity time. Men do most plant-
512 ing of taro and are primarily concerned with the cultivation (including
harvesting) of both yams and the minor crops. The labour of harvesting
[461] yams is shared with the women, although the men direct the operation
since yams are a food crop of considerable social and economic import-
ance, and are stored against future needs. Many of the minor crops
are tree crops - areca, coconut, breadfruit, etc. - and the fact
that men are more adept at harvesting them largely accounts for their
greater involvement.

462 Clearing, although both arduous and designed to cater for long-term food requirements, is something of an anomaly in that only 61 per cent of the time expended is contributed by men. However, the women's role is subsidiary, the men being responsible only for the initial clearing and burning, and the women cleaning up the debris and piling it around tree stumps to burn again.

The fact that most marketing of subsistence crops is done by women may be viewed as a logical extension of their gardening activities. The few marketed by men - areca, tobacco, etc. - are considered male crops and a woman would not normally harvest them. But contrast, the marketing of cash crops is dominately a male concern, with the women contributing to the harvesting and processing of coffee on account of its very high labour requirements.

[461] The single most time-consuming activity carried out by either sex is cooking, accounting for 22.1 per cent of the women's activity time. Ninety-seven per cent of all cooking is done by women, the only exceptions being the preparation of meat at feasts or for 'marketing'.

With the exception of parties which mainly attract the young men, both sexes are involved to much the same degree with social obligations and likewise there is little distinction according to sex in connection with the external agencies. Finally, care of the sick concerns women more than men only because it is they who take children to the infant welfare clinics.

561 (ii) By age. While there is not, strictly speaking, any division of labour according to age, there are significant variations in both the general level of activity and allocation of time. These patterns reflect both the customarily defined responsibilities of the several age groups and their diverging interests in the contact situation. Table 6:8 shows the oldest and youngest age groups to be the least active. The reasons for this need no elaboration.
[461] The limited involvement of young people in village life gives them time and opportunity for other pursuits: for the 15 to 24 years age group temporary absences accounted for 10.3 per cent of survey time and 6.5 hours per man-week were spent in paid work, but only 7.9 hours in subsistence gardening, the dominant activity of all other age groups.

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As age increases, a progressively higher percentage of total time is devoted to productive and to subsistence activities. Commencing at 62.9 per cent and 55.4 per cent respectively in the case of the 15 to 24 years age group, the figures reach 80.8 per cent and 87.2 per cent among those over 55 years. These progressions do not involve an increase in total time devoted to the particular categories. From 25 to 44 years people participate in all forms of activity, while later in life they spend progressively less time on activities not directly concerned with subsistence.

Table 6:8

Sivepe: the division of labour, by age
(hours per week)

Age group	15 to 24	25 to 34	35 to 44	45 to 54	55+
No. and sex of individuals	2M, 5F	4M, 7F	4M, 1F	5M, 5F	2M
Total weeks present	105.9	188.0	115.3	252.6	51.1
Subsistence					
Productive:					
Clearing	2.3	2.7	5.2	3.8	5.8
Subsistence gardening	7.9	13.8	13.5	15.0	12.3
Other subsistence food production	1.8	2.6	5.4	1.6	1.4
Other subsistence activities	1.1	0.8	4.1	2.1	1.5
Household	3.7	8.7	3.0	5.6	0.4
Non-productive:					
Social obligations	4.1	3.2	4.7	3.0	1.8
External					
Productive:					
Cash cropping	0.4	1.7	3.1	1.5	0.1
Paid work	6.5	0.5	0.9	1.0	-
Non-productive:					
External agencies	5.7	6.9	6.9	5.1	2.6
Sickness	1.8	1.2	0.8	0.3	0.7
Miscellaneous	2.4	1.0	0.9	0.2	-
Total	37.7	43.1	48.5	39.3	26.6
Productive time*	62.9	71.5	72.6	77.9	80.8
Subsistence time*	55.4	73.8	74.0	79.1	87.2
Days temporarily absent*	10.3	1.3	8.5	6.5	5.3

* As a percentage of total survey time.

512 [178] with the external agencies, but also for the customary subsistence tasks. Quantitative analysis reveals significant patterns to be existing at two levels - between the days of the week and within each day.

(i) The weekly pattern. The Sivepe people speak of Wednesdays as 'Mission day' (for work at Sasembata mission station), Fridays as 'Council day' (for road maintenance and cleaning the village) and Sundays as a day of rest and attendance at church services. Of [805] the remaining days, Monday and Tuesday are devoted to cash cropping, and Thursday and Saturday to subsistence. They claim to have been directed by the Higaturu Local Government Council to work according to this routine and while it is not strictly adhered to, the concept of the week is firmly implanted in the Orokaiva mind (see Table 6:9).

512 461 [796] The basic household tasks and harvesting of subsistence crops are sustained throughout the week with little variation in time allocated, while others tend to be specific to certain days. Sunday (with Wednesday) has the shortest activity day, of 5.6 hours, this being largely a reflection of the Church's insistence that it be treated as a day of rest. Well over half the day's activities are devoted to attendance at church services, the harvesting of foodstuffs, and household tasks. Two other categories of activities assume a greater level of importance on Sundays: social obligations, particularly informal visiting, and other subsistence activities (house construction and the preparation of tools and equipment). Both are connected with the fact that, following church, much of the day is spent in the village. Although church and council work are largely restricted to their allotted days, little time is actually devoted to them and they do not appear to modify substantially the activity patterns for those days; similarly no direct relationship can be drawn between time spent on cash and subsistence cropping and the pattern of activities on the days ascribed to these tasks.

[527] The marketing of subsistence crops is restricted to Thursdays, the day of the Saiho market, while the time devoted to social obligations reaches a peak on Fridays and Saturdays when 'parties' are normally held. Sundays apart, however, the daily variation in activity patterns is not great. The total range in activity time for all the days is only 0.5 hours but on Sundays a smaller proportion of the time is directed towards productive enterprise - only 56 per cent of the total. The other days, with the exception of Friday, fall within the range of 73 to 84 per cent. On Friday only 61 per cent of the time is spent productively, probably because garden tasks are disrupted by council work in the early part of the morning. In general where extra-village activities recur each week, particularly early in the day, the proportion of productive work falls. This is apparent in the case of lengthy tasks such as clearing and sago-making, which are almost entirely restricted to those weekdays free of external commitment.

Table 6:9

Sivepe: the weekly pattern of activities
(hours per man-day)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Ideal allocation	Cash crops	Cash crops	Mission work	Subsistence	Council work	Subsistence	Church and rest
Total man-days	714	716	717	716	708	707	712
Clearing	0.8	0.6	0.6	0.6	0.3	0.7	0.1
Subsistence gardening - plant, maintain	1.1	1.1	1.0	1.0	0.6	1.2	0.4
- harvest	0.9	1.0	0.8	0.9	0.8	1.1	0.9
Fishing, hunting, gathering	0.2	0.3	0.3	0.4	0.2	0.4	0.2
Sago-making	<0.1	0.1	0.1	<0.1	-	-	-
Other subsistence activities	0.2	0.2	0.3	0.3	0.3	0.2	0.4
Household	0.6	0.9	0.7	0.8	0.8	0.7	0.8
Social obligations	0.5	0.3	0.2	0.2	0.8	0.7	0.6
Cash cropping	0.2	0.3	0.3	0.2	0.3	0.2	0.1
Paid work	0.3	0.3	0.3	0.2	0.3	0.1	<0.1
Marketing - subsistence crops	-	-	-	0.2	-	-	-
Council work	0.2	<0.1	0.2	0.2	0.4	-	-
Church work	<0.1	-	0.2	-	-	-	-
Church services	0.3	<0.1	0.2	-	0.3	0.2	1.6
Other external agencies	0.3	<0.1	0.3	0.2	0.5	0.2	-
Sickness	<0.1	0.2	0.2	0.1	0.2	<0.1	-
Miscellaneous	0.1	0.1	<0.1	0.2	0.1	-	0.2
Total	6.1	5.8	5.6	5.7	6.0	6.0	5.6

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461 (ii) The daily routine and duration of activities. As suggested above, both the duration of an individual activity and the time at which it occurs within a given day may have some bearing on the broader patterns of activity. Williams (1930:21-31) describes an individual as characteristically undertaking several tasks within a single day, garden work normally being completed by midday. Table 6:10 reveals the need for modifying this view. The mid-point of most activities falls within the 1100 to 1400 period, and of the 19 extra-village subsistence tasks 15 have a mid-point falling after 1200. The tendency is to leave for the gardens in early or mid-morning, returning to the village in mid-afternoon. In garden work several tasks are normally carried out during a single visit, food being harvested last.

Of the 13 activities with a mean duration exceeding 5.0 hours only 4 - clearing, planting yams, sago-making and mourning - are associated with the subsistence sector. Of the others, 6 concern the marketing of crops, both subsistence and cash, and 1 is paid work. The subsistence tasks occur infrequently while the cash-producing ones are a regular feature of a commercial economy. While the total time devoted to cash-producing activities in Sivepe is small, it would appear disproportionately disruptive of a subsistence routine characterised by the daily pursuit of a large number of tasks of short duration. Significantly, in terms of total time expended, the two most burdensome cash cropping tasks are processing coffee and harvesting rubber. The mid-point of both these occurs early in the morning (0941 and 0838 respectively) and since the activities are of short duration the intention is apparently to complete them before starting the daily subsistence routine.

While the time devoted to cash-producing activities, both in total and proportionately, is slight, the characteristics of their occurrence and duration suggest that areas of potential or actual 'stress' may already exist in terms of the juxtaposition of subsistence and external sectors at this basic level of work organisation.

The allocation of time within individual activities

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[481]
[482] In a community practising shifting cultivation, where all movement is by foot and all goods are carried on the back, travelling comprises a major component of activity time, therefore significantly affecting the level of productivity. This fact is clearly recognised by the Orokaiva and partially explains village movements. With increasing commercialisation of the economy, the problem of the journey to work becomes more serious on account of the greater volume of goods being handled and increased level of activity.

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[361] One of the stated aims behind Sivepe's projected move was to be sited on an improved road being built to Sasembata in order that

[TEXT CONTINUED ON PAGE 110]

Table 6:10

Sivepe: the mean duration and mid-point of activities
(hours)

Activity		Duration	Standard deviation	Time of mid-point	Standard deviation
Clearing		5.2	2.2	1210	1.6
Fencing		3.4	2.0	1055	1.7
Taro	- plant	3.6	2.0	1152	2.4
	maintain	3.6	2.0	1201	1.9
	harvest	2.5	1.4	1253	2.0
	market	6.0	2.2	0930	0.5
Sweet potato	- plant	2.3	1.4	1234	2.9
	maintain	1.9	0.8	1053	0.4
	harvest	2.6	1.3	1253	1.8
	market	6.4	2.1	1041	2.7
Yam	- plant	5.2	2.5	1135	0.9
	maintain	3.8	1.7	1321	2.6
	harvest	4.6	2.4	1218	1.7
	market	3.3	-	1115	-
Minor crops	- plant	1.4	1.3	1404	2.8
	maintain	2.5	2.0	1349	2.6
	harvest	2.0	1.6	1302	2.5
	market	5.5	2.1	1048	2.7
Fishing		3.8	1.5	1201	3.9
Hunting		4.2	2.5	1355	4.3
Gathering		1.8	1.9	1410	3.5
Sago-making		7.7	3.1	1256	1.5
Preparation of tools and equipment		2.2	2.1	1307	3.7
Construction		3.9	2.9	1155	2.9
Coffee	- plant	2.8	0.5	1530	0.8
	maintain	4.1	1.1	1108	0.6
	harvest	4.1	2.2	1221	2.2
	process	2.6	1.6	0941	2.1
	market	9.7	1.2	1215	0.4
Cocoa	- plant	2.0	0.8	0945	2.5
	maintain	0.8	-	-	-
Rubber	- plant	4.3	1.5	1145	-
	harvest	2.4	1.1	0838	1.5
	market	5.1	1.3	1100	0.2
Paid work		8.3	2.8	1149	1.2
Washing		0.7	0.5	1047	2.4
Cooking		1.6	0.9	1516	2.8
Collecting firewood		1.2	0.9	1407	2.8
Social obligations					
	- marriage	2.7	0.4	1343	0.1
	death	7.6	4.4	1305	7.2
	other	4.7	2.2	1305	6.2
	visits	4.8	3.6	1356	3.3
Sick	- personal	2.8	2.5	1040	1.8
	care of	1.9	0.9	1001	1.7
Purchasing		4.7	3.2	1253	2.7
Council work		1.4	2.0	0920	2.7
Meetings		5.1	3.0	1200	2.2
Church work		5.3	1.7	1122	1.0
Church services		3.5	2.4	1001	3.0
Recreation		3.7	2.3	1532	4.2
Other		4.7	3.4	1200	2.7
Researchers		4.6	3.4	1301	2.5

484 Sangara. Finally, movement directly related to the external agencies and sickness is proportionately greater than for all other activities apart from the two exceptions noted. In general, travelling times appear to reflect a significant expansion in the village oecumene following contact. Further, in those activities specifically related to this expansion there is a lower level of efficiency in so far as travelling is concerned, since there has been no parallel development in the modes of travel.

●461 Detailed time and motion studies of a limited number of activities were conducted in order to acquire a better understanding of the utilisation of activity time in areas other than travelling and of the level of productivity within the framework of the existing economic system and technology. A total of 28 man-instances were surveyed, the activities comprising clearing, several subsistence gardening tasks, sago-making, house construction and coffee harvesting. The results are presented in Table 6:12. The main feature they demonstrate is that the various productive tasks (Main, Ancillary and Other) carried out within the duration of a single activity amount to only 49.3 per cent of the total time devoted to that activity; and 27.4 per cent of the total time is accounted for by resting and eating meals. The time spent in resting increases with the intensity of effort and exceeds 50 per cent in sago-making, productive effort being proportionately reduced. However, in this case the increased leisure time is compensated for by a large work group so that it is possible to maintain a high rate of sago production.

[462] While acknowledging the small number of observations, tentative patterns may be discerned within the sample according to sex, age and cash cropping status. Men concentrate more on the main task than women, as the latter also are responsible for preparing any food during the course of the work, washing the children and doing such minor tasks as foraging for greens; the 25 to 34 years age group allocates its time in a more productive manner than any of the others, spending 56.3 per cent on the main task and only 16.1 per cent on resting and meals; while cash croppers appear to use their activity time more productively than non-cash croppers. The cash croppers spend 64.9 per cent of activity time on the various productive tasks and only 17 per cent in leisure compared with 36.3 per cent and 36 per cent respectively for non-cash croppers. This clear distinction is in part a function of the frequency of sago-making by non-cash croppers, but if this activity is excluded the figures for cash croppers become 64.2 per cent and 15.5 per cent respectively, and for non-cash croppers 47.3 per cent and 23.9 per cent respectively; thus the distinction, if somewhat modified, persists. Furthermore, it must be recognised that some cash croppers at least, with their higher cash incomes, have less need to make sago during the dry season since they can supplement their diet with storebought foods.

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Table 6:12

Sivepe: the allocation of time within activities. A detailed analysis of twenty-eight occasions covering nineteen individuals and a breakdown according to age, sex and cash cropping status

(minutes and per cent)

				Travel	Rest and meals	Main task	Ancillary tasks	Other tasks	Cooking	Washing	Total
	Whole sample	(28)*	Mean duration	42	72	102	15	14	17	3	265
			Per cent	15.8	27.4	38.5	5.7	5.1	6.3	1.2	100
SEX	Males	(14)	Mean duration	41	74	118	26	12	-	-	271
			Per cent	15.1	27.4	43.5	9.5	4.3	-	0.1	99.9
	Females	(14)	Mean duration	42	70	85	4	15	33	6	255
			Per cent	16.5	27.4	33.2	1.6	5.9	13.0	2.4	100
	Cash cropper	(16)	Mean duration	32	36	106	14	16	5	2	211
			Per cent	15.1	17.0	50.6	6.5	7.8	2.3	0.8	100.1
	Non-cash cropper	(12)	Mean duration	55	121	96	17	10	33	6	338
			Per cent	16.4	36.0	28.4	5.0	2.9	9.7	1.6	100
AGE GROUP	15 to 24	(2)	Mean duration	21	181	49	12	-	126	28	417
			Per cent	5.0	43.5	11.7	2.9	-	30.2	6.8	100.1
	25 to 34	(8)	Mean duration	24	29	101	1	12	10	3	180
			Per cent	13.4	16.1	56.3	0.6	6.6	5.3	1.7	100
	35 to 44	(8)	Mean duration	33	53	132	36	1	6	-	261
			Per cent	12.6	20.3	50.7	13.8	-	2.2	-	99.6
	45 to 54	(9)	Mean duration	72	69	99	10	31	10	1	292
			Per cent	24.5	23.6	34.0	3.5	10.6	3.6	-	99.8
	55+	(1)	Mean duration	30	390	-	10	-	-	-	430
			Per cent	7.0	90.7	-	2.3	-	-	-	100

* Indicates number of man-instances observed.

●461 The analysis of work organisation within the framework of specific activities reveals that the essentially non-productive aspects of travel and leisure account for almost as much time as that devoted to productive tasks. Thus, while the activity day is reasonably long there is immediate scope for improving efficiency at this level, and the interest currently being shown in land tenure conversion among the Orokaiva, plus the distinctive time and motion patterns of the cash croppers and younger householders possibly reflect some realisation of this.

The nature and size of work groups

[181] [592] Both Keesing (1952:19) and Reay (1953:111) have remarked upon the highly individualistic nature of the Orokaiva and this trait is clearly reflected in their work patterns. The household, comprising a nuclear family, is the basic unit of production and consumption[1] yet seldom do all its members work together on a single task. The pattern is rather for individuals to perform distinct but mutually compatible tasks at the same location. In one such case, where the four adult members of a household spent a six-hour period together in the same garden, the following allocation of work and sequence was observed:

[462]

Husband and son - clearing bush
Wife and daughter - weeding taro
Wife - collecting taro tops (for planting)
Son - planting taro
Wife - collecting sweet potato (for consumption)
Husband - collecting yams (for consumption)

Likewise, members of an expanded family frequently travel together to and from their separate, but adjoining, gardens and perform similar tasks within their respective areas.

[476] In Table 6:13 work groups are defined narrowly, in terms of individuals performing the same task together at the same site, and as such they are normally seen to comprise less than two adults. The main exceptions are activities where collaboration is specifically

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[1] Only 9 per cent of all activity time is rendered in the form of labour services to other households. Nevertheless, the daily distribution of food is an important facet of Orokaiva life, and its scale contradicts to some extent these individualistic notions, suggesting that communalism is reflected by exchange rather than co-operative effort. See Part III for an analysis of the exchange system.

[TEXT CONTINUED ON PAGE 116]

Table 6:13

Sivepe: the mean size of work groups in productive activities*

Activity			Mean no. of individuals in work group
Clearing			1.7
Subsistence gardening:	Fencing		1.8
	Taro	- plant	1.4
		maintain	1.4
		harvest	1.3
		market	4.3
	Sweet potato	- plant	1.0
		maintain	1.0
		harvest	1.1
		market	2.6
	Yam	- plant	1.5
		maintain	1.2
		harvest	2.5
		market	1.0
	Minor crops	- plant	1.0
		maintain	1.2
		harvest	1.3
		market	1.6
Other subsistence food production:			
	Fishing		2.7
	Hunting		1.8
	Gathering		1.0
	Sago-making		5.3
Other subsistence activities:			
	Preparation of tools and equipment		1.0
	Construction		2.4
Household:	Collecting firewood		1.1
Cash cropping:	Coffee	- plant	1.0
		maintain	1.3
		harvest	1.9
		process	2.9
		market	1.0
	Rubber	- harvest	1.1
		market	1.9

* Computed from work groups initiated by sample members only and disregarding all those tasks specifically designated as 'communal'.

●461 [476] required, in particular sago-making and house construction.[1] In the case of the former about eighty man-hours per day should be expended on a mature tree if the sago is to be produced before spoiling,[2] while in the latter assistance is specifically needed to erect the timber frame and put the roof in place.

Some social significance can probably be ascribed to other activities with a mean size of work group exceeding 2.0 persons. This applies particularly to the preparation of roofing sections and to fishing, both of which have an important recreational component either in the form of conversation or 'picnicking'. In the case of yams, where the mean size of work group is 2.5 persons, the tuber is considered harder to harvest than taro because it develops at a greater depth, and larger quantities are harvested at a single time for storage. However, as with sago-making, an important consideration in rendering assistance is undoubtedly that the service will be reciprocated either immediately or subsequently with a quantity of the foodstuff involved. Both are perceived as 'hard' work and the question of cost-benefit is therefore seriously considered in deciding whether to render assistance. The difficulty experienced in mobilising a sago-making work group when there is no widespread shortage of food is evidence of this.

[462] The large work groups associated with the marketing of the two main subsistence crops, taro and sweet potato (4.3 and 2.6 persons respectively), are to some extent misleading. In virtually all cases the marketing was done at Saiho by women, each selling her own produce. The approach to marketing these crops is very different from that of cash crops - one woman decides she will take some produce to Saiho and a number of others then decide, very much on impulse, to follow suit.

Relatively large work groups are associated with a number of cash cropping activities. This is particularly true of coffee,

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[1] In fact these activities comprise a number of distinct tasks and if we are to be consistent in our categorisation we should therefore speak of 'taro-producing' rather than isolate the several tasks involved. Then, given the type of work allocation and sequence described above, the work groups associated with taro-production approach those of sago-making and house construction. In spite of these apparent inconsistencies in the method of categorisation, the fact remains that taro-producing activities are not necessarily collaborative and they are distributed over an extended period, while collaboration is actively sought (and required) in the other cases and the activities are restricted to a much shorter time span.

[2] If a household decides to extract sago without outside assistance an immature tree is normally felled.

461 the principal source of cash, where the returns to labour are relatively low.[1] Here families of procreation and orientation often form a single work group where parents, without cash crops of their own, are called upon to assist their children. The work groups are largest (2.9 persons) for pulping where the crude methods used are especially inefficient. The marketing of rubber involves work groups of a mean size of 1.9 persons since the product has a higher weight-value ratio than coffee and is also bulkier.

A relationship appears to exist between the 'hardness' of the work (in terms of energy expenditure and the capacity of one person to handle it) and the size of the work group. The affiliation of members of such groups is extremely varied and appears to be based largely on considerations of residence as it is exceptional for members of a Sivepe-initiated work group to be drawn from outside the village.

[224] Apart from the activities described there is a variety of communal tasks initiated by an external agency and there are others which apparently originate elsewhere but operate through an agent within the village. Establishment of the communal cash crop garden and the pre-Christmas hunting drives both fall within this latter category and work groups exceeding twenty people were often associated with them. Of the two, the hunting drives were most successful since the type of organisation and techniques used were essentially traditional - beaters drive the game towards a long staked net where they are speared by the netsmen.

[476] Because of relative unfamiliarity with most forms of co-operative effort, communal activities initiated by the external agencies generally prove unsuccessful. Where they are customary, as in sago-making, an immediate return against assistance rendered is frequently obtained. No such immediate or tangible returns are associated with many of the communal activities initiated by the external agencies.

The activity patterns of selected individuals

128 The preceding pages have been concerned with a strictly quantitative analysis of the behaviour of a population of 35 adults. Here closer consideration is given to six individuals, representing a range of 'types', with the object of exploring possible relationships between work and the more qualitative factors of family, status, values and aspirations.

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554 Linton. The main material criteria used in assessing individual status are diligence in work, generosity, wealth in terms of both cash and traditional valuables (di-hambo) and abundance of yams. By all these standards Linton ranks very highly in the village,

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[1] See p.292. A

A,[See Category 433, p.292--Analyst]

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Table 6:14 illustrates the main features of the activity patterns of the six individuals. Linton devotes a large amount of time to such minor activities as hunting (81 per cent of other subsistence food production) and construction (84 per cent of other subsistence activities), the latter mainly on improvements and repairs to his house rather than major rebuilding. Mourning accounted for 54 per cent of the 4.3 hours spent on social obligations, an unusually high figure even for older people and a reflection of his allegiance to customary forms of behaviour.[1]

Table 6:14

Sivepe: activity patterns of selected individuals
(hours per man-week)

	Cash croppers				Non-cash croppers	
Name	Linton	Palminus	Gorukari	Olga	Rodney Gill	Umbahapa
No. of weeks present	25.0	24.4	26.7	26.7	22.1	26.6
Percentage of survey days temporarily absent	7.4	9.5	1.1	1.1	17.9	1.5
Subsistence						
i. Productive						
Clearing	4.0	4.3	3.5	2.7	3.0	6.3
Subsistence gardening	13.7	15.3	17.9	18.7	2.5	12.5
Other subsistence food production	8.0	9.1	1.4	0.3	5.2	1.2
Other subsistence activities	5.1	2.3	0.5	0.2	3.1	2.9
Household	0.9	1.0	12.5	13.0	0.4	0.5
ii. Non-productive						
Social obligations	4.3	5.9	3.1	3.1	6.9	1.9
External						
i. Productive						
Cash cropping	3.1	5.9	1.7	1.3	0.4	-
Paid work	4.4	-	-	-	8.6	-
ii. Non-productive						
External agencies	7.2	5.6	6.4	5.9	6.0	3.3
Sickness	0.8	0.9	1.4	0.5	1.3	0.7
Other	1.4	0.7	0.6	-	6.4	-
Total	52.9	51.0	49.0	45.8	43.7	29.4
Percentage of total time spent in						
Productive activities	74	74	76	79	53	80
Subsistence activities	68	74	79	83	48	86

[762]

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[1] During the year an age-mate from Seho clan committed suicide in Port Moresby and Linton acted as one of the chief mourners.

512 461 The 7.6 hours spent by Linton in cash-producing activities far exceeds the sample average and the extent of his commercial interests is reflected in his household having the largest monetary assets of the eleven surveyed and the fourth highest cash income;[1] 3.1 hours were devoted to cash cropping, almost exclusively to coffee, and 4.4 hours to paid work. The latter, building the house for Saiho hospital, was confined entirely to period III and so outside the cash cropping season. He, and another member of the sample, had to provide all materials and on completion of the house would be paid $50; however, it was still unfinished at the end of the survey. Opportunities of this type often occur and in spite of the distance to Saiho and the need to supply their own building materials, the informal nature of the contract and being able to reside in the village throughout more than compensate and account for the popularity of the work, particularly outside the cash cropping season.

Linton's concern with cash producing activities is paralleled by his involvement with the external agencies. Over half of the 7.2 hours per week is spent at church services, in maintenance work on the mission station and in helping the Papuan priest with his food gardens. In fact, proportionately, Linton devotes no more time to productive tasks than the sample as a whole does although he was absent from the village on only 7.4 per cent of survey days, each occasion being of short duration.

[177] Palminus. Like Linton, Palminus is a married man with five children, all at or below school age. A confirmed cash cropper with the largest individual holding of coffee in the sample (246 trees), he is also one of the 'new' generation with a firm liking for non-traditional forms of entertainment, including gambling, guitar music, parties and alcohol. Aged 34 years, he received four years' schooling and has spent a further four and a half years in unskilled and semi-skilled employment in Port Moresby, Kerema and elsewhere in the Northern District.

With a mean activity week of 51.0 hours Palminus is only slightly less busy than Linton. The general pattern in which this time is allocated approximates that of the sample as a whole, with a consistently higher level of activity being recorded in most categories.

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[1] See Tables 4:6 and 10:10.

512 Although without access to a shotgun, Palminus spends even more time in hunting
461 than Linton (98 per cent of the 9.1 hours devoted to other subsistence food production).
[273] Guitar parties account for over half the time spent on social obligations and, while they normally appeal primarily to unattached youths, Palminus is attracted to them by the liquor (including beer, gin, rum and methylated spirits) often on sale.

The time spent in coffee production, 5.9 hours per week, is a particularly high figure when it is considered that this work was confined to little more than one-third of the total survey period. When, during the latter part of the dry season, Palminus had completed harvesting his own coffee he agreed to pick in the garden of a member of Seho clan. Although he did no paid work while resident in the village, over half of the 9.5 per cent of survey days on which he was absent was spent at Sangara contructing a house for a settler, with a view to receiving a cash payment for it at the end.

Gorukari. Gorukari is aged 32 years and a married woman with five children, all under the age of 12 years. The two eldest attend Sasembata school, one, a six year old,
[562] refuses to go, and the others are below school age, one being still at the breast. Although
[177] she received a few months' schooling at Sasembata, her experience of Western culture is slight and in this respect she is typical of the women. Her husband is not unlike Palminus in that he is industrious, interested in cash cropping but not a particularly influential person.

On account of the size of her family and age of her children, Gorukari has a heavy burden of basic subsistence gardening and household tasks and while her eldest daughter, aged 11 years, could be of considerable assistance, regular attendance at school prevents this. In addition, Gorukari's domestic obligations often extend to the care of her husband's father and mother plus two children who reside next door. The father is over 55 years and the mother only a little younger and both are frequently sick.[1]

With a mean activity week of 49.0 hours, 62 per cent of her time is spent on subsistence gardening and household tasks, taro gardening predominating in the former and cooking in the latter. This figure contrasts with the sample mean of 46 per cent of total time. In effect Gorukari is concerned essentially with producing and preparing for consumption the staple food, taro.

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[1] He was sick, or absent through sickness, on 30 per cent of potential survey days and she on 26 per cent.

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The figure of 49.0 hours per week is somewhat misleading in the case of such a woman where so much time is taken up with care of children and minor household tasks which do not lend themselves to quantitative analysis. In following her movements through a single day it was found that, between rising at 0610 and finishing the evening meal at 1845, Gorukari spent only 1 hour 50 min. actually resting or eating. She was therefore active for a total of 10.8 hours compared with an 'activity' figure of 8.1 hours. From 1845 until 2230, when she retired, she sat and talked with her husband. Assuming this to have been a typical day, a woman such as Gorukari has an activity week of about 75 hours.

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Social obligations account for 3.1 hours per week, 55 per cent spent in visiting. Not only is this substantially less than the figures for Linton and Palminus but it reflects a somewhat different emphasis. While the role of women in ceremonial life is subsidiary to that of the men, they are often responsible for the more informal exchanges which are a characteristic feature of Orokaiva life and, since the society is typically a patrivirilocal one, it is to be expected that the women spend a significant amount of time visiting their kin.

Gorukari's primary concern with food gardening and household tasks is expressed in the general distribution of her time. In particular she is more concerned with subsistence activities than the sample in general, these accounting for 79 per cent of her total activity time, while she also places greater stress on productive tasks. These facts are manifested in both the infrequency and short duration of her absences from the village which amount to only 1.1 per cent of potential survey days.

Olga. Olga is aged about 46 years and the wife of the most progressive of the elder generation - a man with extensive non-traditional experience. They have eight children, the eldest of whom resides, with his family, next door. The two youngest, girls aged 10 and 14 years, attend Sasembata school and still live at home. All but one of the other children are married and normally reside elsewhere.

Subsistence gardening and household tasks dominate Olga's activities to an even greater extent than they do Gorukari's, accounting for 69 per cent of total time in an activity

512 week of 46.8 hours. Likewise 68 per cent of the 18.7 hours spent in subsistence gardening
461 is confined to taro cultivation and 99 per cent of the 13.0 hours on household tasks to cooking. Apart from clearing, in which women are responsible for 'sweeping' up the debris and much of the secondary burning, the time Olga devotes to the other productive subsistence activities is minimal.

Sixty-four per cent of the time spent on social obligations comprises visiting, an even greater proportion than for Gorukari although Olga did not change her place of residence at marriage.[1] One of her married daughters lives in a village about half an hour's walk away and, with her husband away in the police force in Port Moresby, there is a great deal of inter-visiting.

Although without cash crops of his own, Olga's husband worked some coffee belonging to their eldest son during the year, the son in turn confining his cash cropping to the
[462] rubber. Olga assisted her husband largely in pulping and drying the parchment and in its subsequent marketing. However, her involvement with the external sector of the economy is largely confined to the external agencies, particularly the church. On account of her household responsibilities she is seldom away from the village for more than a night or two at a time, while the emphasis placed on subsistence activities (83 per cent of her total activity time) results in both her and Gorukari's spending more time on them than either Linton or Palminus, in spite of the latter having longer activity weeks. Finally Olga spends less time on non-productive tasks - only 21 per cent compared with 26 per cent in the case of the two men.

__Rodney Gill__. Rodney Gill is Gorukari's husband's brother and, at the age of 18 years, the eldest child still residing with his parents. While both parents are often disabled through sickness and rely on the support of Gorukari and her husband, Rodney Gill's behaviour pattern does not suggest any tendency to assume domestic responsibilities. With a mean activity week of 43.7 hours he spends only 48 per cent of his time in subsistence activities and 53 per cent in productive work. Typically, adolescent aspirations are directed to wage employment and many young men leave the village. Of the six males in the 16 to 19 age group at the beginning of the year, one joined DASF at Popondetta

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[614] [1] She is a member of Areha lineage, Jegase clan, and her husband a member of Berekipa lineage of the same clan. Intra-clan marriages are not uncommon, a contributing factor in this instance being that Olga is believed to be descended from a Togahau war captive (Rimoldi: personal communication).

512 461 and two walked over the Owen Stanleys to Port Moresby in search of work. Two of the remaining three are still at school at Sasembata, leaving only Rodney Gill at home. The fact that he has not already left probably reflects some latent sense of obligation towards his parents.

After completing standard 4 at Sasembata, Rodney Gill went to stay with his married sister near Port Moresby for several months but he has never been employed outside the village. Nevertheless, he is frequently away for several weeks at a time, particularly at Sangara. Even during the survey period he was absent on 17.9 per cent of potential survey days, or 34 days in all. During 32 of these he was on an unbroken visit to Sangara assisting a settler construct a house, for which he received $6 and his keep.

[464] [465] Two months after returning to Sivepe he obtained work at Sasembata mission station, helping to erect new class-rooms for a salary of 80c per month. Disillusioned by the small wage he left after three months; nevertheless this work was the most important category in his total activity pattern. Since his parents have no cash crops and Rodney Gill has made no attempt to establish his own, the little cash cropping he does, 0.4 hours per week, is confined to assisting his brother Cecil King with his coffee.

Rodney Gill spends only 32 per cent of his time on productive subsistence tasks, compared with the sample mean of 65 per cent, and his contribution to subsistence gardening is particularly slight. Like other youths, he prefers to spend his time hunting and fishing, [883] and for him other subsistence food production is the main subsistence activity. During the survey Rodney Gill rebuilt, almost single-handed, the single men's house in which he sleeps and also gave Cecil considerable assistance in rebuilding his house.

517 [461] In general the productive tasks available in the village which appeal most to young men are those which occur irregularly or which can be done on impulse, have an important recreational aspect and have associated with them obvious shows of skill or strength. Their most popular leisure pursuits are parties and dancing to guitars. Rodney Gill spends more time fulfilling social obligations than any of the other individuals considered - 6.9 hours a week - yet 75 per cent of this was attending parties. Although most youths seldom [533] have much money to spend on food and alcohol at these gatherings, the guitar music, [535] singing and dancing pursued unrelentingly through the night appeal to them. Modelled as [177] they are on expatriate festivities, and given an element of inter-village rivalry with [578]

517 [177] [578] competing guitar groups, parties also provide a means of making contact with the opposite sex.

Apart from attendance at church services, meetings of all kinds attract the young men and account for 32 per cent of the time spent with the external agencies. 512 [177] Rodney Gill also frequently attends Sasembata clinic, undoubtedly being attracted by the young people working there. Finally, he spends the very substantial amount of 6.4 hours on other activities, 44 per cent on recreations such as football, and 47 per cent in rendering assistance of various kinds to the researcher.

512 461 In general, while Rodney Gill has an above average activity week, the way in which he allocates this time manifests a general lack of concern with or involvement in the village economy. His interest is largely confined to pursuits which have an important recreational value or where his participation is passive, as in church services or meetings. Such behaviour is not untypical of the young unmarried men and while it partly reflects their not yet having assumed adult responsibilities it is also associated with a sense of *malaise* with village life.

887 512 *Umbahapa*. Umbahapa is over 55 years of age and the oldest resident of Sivepe. Apart from age, his activities are further restricted by being a widower and partially lame in one leg. Although living alone and cultivating his own gardens, he depends to a great extent on a married daughter resident next door, particularly for his meals and for harvesting produce from his gardens; a younger sister, Linton's mother, also helps him. Without cash crops, and his non-traditional experience restricted to acting as a war-time carrier between Kokoda and the coast, Umbahapa is of necessity a member of the 'old' generation. He has no cash income and does not participate in any cash-producing activities.

Umbahapa's activity week comprises only 29.4 hours, his efforts being directed almost exclusively to the subsistence sector. Disregarding household tasks (since his daughter prepares most of his food for him), his productive efforts are possibly adequate to meet his food requirements, although none of his gardens were in production when surveyed. The large amount of time expended on clearing (6.3 hours) is probably explained by Umbahapa's labour being less productive than a younger person's. The total of 12.5 hours spent on subsistence gardening approximates to the sample mean although the distribution of this

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Table 7:3

Inanda: mean time spent per man-week on all activities in each recording period
(hours per man-week)

Group	Activity		Period I	Period II	Period III	Survey
Clearing			2.9	2.0	3.5	2.9
Subsistence gardening	Fencing		0.6	2.3	0.2	0.9
	Taro	- plant	2.4	1.0	2.4	2.3
		maintain	2.1	2.6	2.2	2.2
		harvest	2.9	0.9	1.6	2.1
	Sweet potato	- plant	0.1	0.5	0.5	0.3
		maintain	-	0.2	0.2	0.1
		harvest	0.5	0.8	1.2	0.8
	Yam	- plant	0.2	-	0.3	0.2
		maintain	-	-	0.2	0.1
		harvest	0.1	1.3	-	0.3
	Minor crops	- plant	0.2	0.4	0.5	0.3
		maintain	-	-	0.3	0.1
		harvest	2.0	1.3	1.5	1.7
	Marketing crops and other products		-	0.4	0.7	0.3
	Total		11.2	12.7	11.9	11.7
Other subsistence food production	Fishing		4.5	1.4	4.6	3.8
	Hunting		1.5	2.2	2.5	2.0
	Gathering		0.2	0.9	0.7	0.5
	Sago-making		0.1	5.2	-	1.2
	Total		6.3	9.7	7.8	7.5
Other subsistence activities	Preparation of tools and equipment		1.3	1.3	1.6	1.4
	Construction		1.7	4.8	0.5	2.0
	Total		3.0	6.1	2.0	3.4
Household	Washing		1.2	1.7	1.6	1.4
	Cooking		0.6	0.2	5.9	2.2
	Collecting firewood		0.1	0.4	0.3	0.2
	Total		2.0	2.3	7.7	3.8
Social obligations	Marriage		-	-	-	-
	Death		0.4	-	-	0.2
	Other		2.7	0.3	1.9	2.0
	Visiting		1.6	2.3	2.4	2.0
	Total		4.8	2.7	4.4	4.2
Cash cropping	Coffee	- plant	-	0.2	-	0.1
		maintain	0.3	0.2	0.5	0.3
		harvest	0.2	0.2	-	0.1
		process	0.1	0.1	-	0.1
	Cocoa	- maintain	0.1	-	-	-
	Copra	- maintain	-	-	0.2	-
		harvest	-	0.7	-	0.1
		process	-	0.6	-	0.1
		market	-	-	-	-
	Total		0.6	2.0	0.7	1.0
Paid work			2.4	0.1	2.8	2.0
	Entrepreneurial		0.7	0.2	1.0	0.7
	Total		3.1	0.3	3.8	2.7
Sick	Personal		0.3	0.6	1.1	0.6
	Care of sick		0.7	1.2	1.0	1.0
	Total		1.1	1.9	2.1	1.6
External agencies	Purchasing		0.7	0.7	0.8	0.7
	Council work		1.3	0.7	1.5	1.2
	Meetings		0.6	-	0.1	0.3
	Church work		0.1	-	0.3	0.1
	Church services		1.1	0.6	0.7	0.9
	Total		3.8	2.0	3.4	3.2
Miscellaneous	Recreation		0.5	0.3	0.5	0.5
	Other		1.1	0.9	0.8	1.0
	Researchers		0.1	-	-	0.1
	Total		1.7	1.2	1.4	1.5
Total - all groups			40.6	43.0	48.6	43.5

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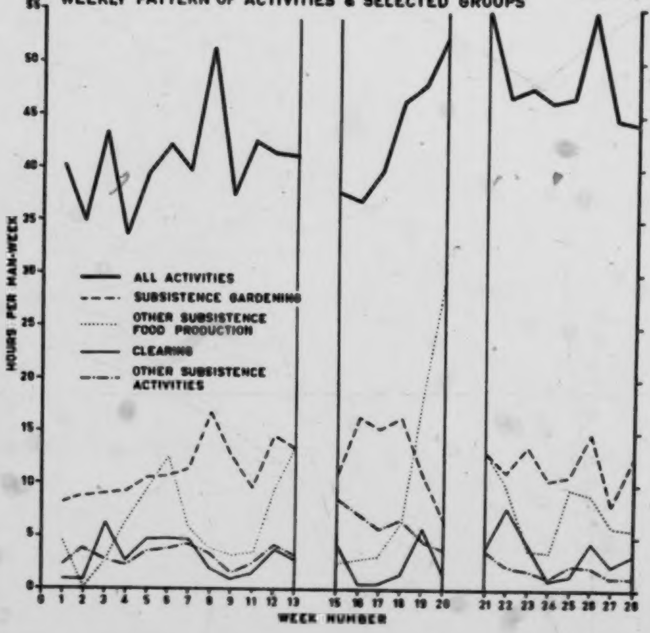
INONDA
WEEKLY PATTERN OF ACTIVITIES & SELECTED GROUPS

FIGURE 7:2



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towards the end of this season. Due to the intensive demands on labour for sago-making, men often spend all the daylight hours on this task, so that the average working day is longer than at other times, reaching 7.5 hours. The time spent on sago is at the expense of not only leisure but also of clearing, subsistence gardening, other subsistence activities and involvement with external agencies (particularly council work). Although sago-making is normally restricted to the dry season, in 1964 one household had to resort to sago near the end of the wet season, because the people concerned had spent several months late in 1963 at Saiho hospital and, on returning to Inonda, had no time to clear sufficient gardens to provide food throughout the wet season.

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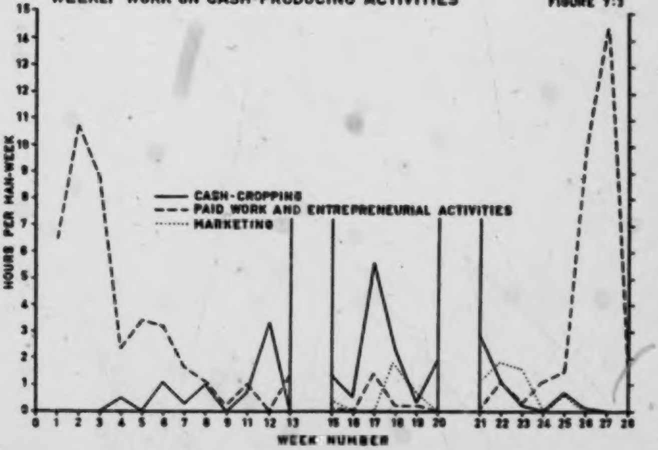
INONDA
WEEKLY WORK ON CASH-PRODUCING ACTIVITIES

FIGURE 7:3



222 The gathering of forest plants receives more attention during
the dry season to compensate for lower garden production. The
462 increased dietary significance of such plants at this time is,
262 perhaps, understated in Table 7:3, since women often collect green
leaves beside paths while walking to or from other activities and
such gathering may not be recorded. In addition, a considerable
224 amount is gathered by children. Hunting also increases during the
221 dry season, with the increased number of wild pigs. However, a
significant factor in 1964 was the acquisition of a shotgun in July
[411] by the leading men (with financial assistance from others, who
thereby acquired rights of use). From this time, hunting to obtain
meat for both food and marketing increased, becoming most popular
226 during period III when marketing also was most frequent. Due to
221 the drop in water levels, the time devoted to fishing during the dry
season is much less than in the rest of the year, but over the year
as a whole, more time is spent in it than in any other single activity.

512 (ii) Other subsistence activities. The other subsistence
461 activities are construction of houses and other buildings and the
[462] preparation of tools and equipment such as spears, sleeping-mats
and string bags. The latter activity occupies, on average, about
[286] 1.5 man-hours per week with no seasonal variation. Over one-third
of this time is accounted for by women making string bags. More
[285] than one-quarter is spent, mostly by women, collecting and weaving
pandanus leaves into mats and over one-tenth in sewing clothes.
[824] Men's tasks in this sphere include the making and repair of axe-handles, spears and fishing nets and the weaving of coconut-leaf
baskets. House construction is carried out almost entirely by men,
[462] except for the preparation of roof-sheets from sago-palm leaves, in
which women may assist, and it occupies about 2.0 man-hours a week.
During periods I and II, several people were building houses on
the new village site. For the most part, such activity was not
intensive; some continued to live in the old village and from time
to time worked on their new houses, while others built temporary
houses on the new site and lived in these while erecting their
permanent houses. Not all construction, however, was subsistence
oriented. In July and early August the men spent 189.6 hours
erecting the copra-drier and in period III the entrepreneur spent
3.2 hours on his new trade store. (Also in period III, 33.1 hours
were spent building the chapel, but this was recorded as 'church
work' and is included under 'external agencies' rather than 'construction'.) The amount of time shown as spent on construction of
houses, garden shelters and the copra-drier is much higher than the
[342] time that would be spent on building in most years. This is due to
the unusual circumstances during 1964 of the decision to build the
copra-drier and the reconstruction of the village; normally, individuals might build new houses only once in five years. Thus, the
annual rate of house-construction would be only about one-fifth of
the 1964 rate.

The amount of time expended by individuals in household tasks - cooking, washing and collecting firewood - as shown in Table 7:3 - is understated. Owing to problems of observation during periods I and II when the village was on two sites, cooking was rarely recorded. As a rule, wives prepare two meals a day; breakfast requires 0.8 hours and the evening meal takes 1.5 hours on average. When a midday meal is prepared, the mean time taken is 1.0 hours. Thus, wives are likely to spend at least 2.3 hours a day in cooking, or 16.1 hours a week, and it is clear that cooking is the most time-consuming task for them. When the figures are calculated incorporating this average figure, the mean time spent by individuals on household
[857] tasks appears as 10.1 hours rather than 3.8 hours. (This does not include the important contribution made by children, particularly young girls, who, from the age of about five, fetch water and wash pots and, by the time they are about twelve, assist in preparing meals.)

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Table 7:4

Inonda: adjusted mean weekly activity over survey period
(Adjusted with additional data on household tasks)

Mean number of man-weeks	Hours per man-week	
	Household	Total
14.7	10.1	49.9

(b) The external sector

In total, subsistence activities, including household tasks as adjusted above and excluding construction oriented towards cash income, occupy 34.8 hours per person per week. Cash-producing activities - cash cropping, paid employment, entrepreneurial activities, marketing of game and construction of the copra-drier - together occupy 4.5 hours per person per week. Unlike most of the subsistence activities, not everyone engages in cash-producing activities. Some men did not obtain paid work during the survey period and there is only one man with the experience and confidence to operate as an entrepreneur. Women may assist husbands and kin in cash cropping and sell produce in the market on their own account but they do not engage in paid work (though some had, in the past, worked as domestic servants on a nearby plantation). However, taking the village data as a whole, an individual spends an average of 39.3 hours a week on productive activities in both the subsistence and the monetary sectors. [462] [464]

(i) Cash cropping. The average time devoted to cash cropping is only 1.0 hours per man-week. Although the survey excluded much of the coffee harvesting and selling season, the figure would be only a little higher if these had been incorporated. Only one household harvested and processed coffee during the survey; if the other two households with mature trees had also done so at the same rate, the overall average time on cash cropping would be raised to 1.4 hours per man-week. The most intensive work was carried out on copra in the dry season, when harvesting and processing occupied a mean 1.3 hours per man-week over that period. Unfortunately, much of this time was wasted. When the drier was finished, it was decided that copra-making should be a communal project and the villagers spent a total of 82.6 hours, most of this in three days, collecting and splitting some 410 coconuts, laying out the flesh and maintaining a fire. On the fifth day, the fire was stoked with husks instead of wood and shells and the copra was spoiled by the thick smoke. The following week the women refused to assist the men for more than a few minutes, since their previous labour had been wasted. The men spent 10.8 hours harvesting more coconuts and assistance from the researchers saved them 1 hour in transporting the nuts to the drier. The various stages of processing took up 512 12.4 man-hours and 7.5 man-hours were spent in bagging and selling 461 the 75 lbs of copra. The entrepreneur sold the copra to the Hotu Native Co-operative Society at Oro Bay and by getting a lift there and back he spent only 4.4 hours on what would have been a 10-hour journey by foot. The total input of labour on the second batch of copra was 30.7 man-hours and the total return was $2.32, or under 8c per man-hour. This return disregards establishment and maintenance costs; however, as the palms used had been planted for subsistence purposes and maintenance is rare, the additional costs were negligible. They would only become significant if people planted large numbers of trees specifically for copra. This was the intention of several men. As is shown on pp.292-3, the return to labour in copra production is higher than the normal return from casual labouring and during 1965, after the survey had ended, copra was made regularly by the villagers, including the four men who had obtained work in Popondetta. Assuming that the efficiency of harvesting and processing increased with experience, it seems likely that the cash returns also increased during 1965.

(ii) Other activities. Involvement with the external agencies 512 takes an average of 3.2 hours per person per week. Most of this [466] time is spent by women in cleaning the village area, defined as [651] 'council work', which also includes a total of 42.5 hours spent by villagers in the first week paying taxes to the council. Church [796] services occupy 0.9 hours a week; the entrepreneur holds a half-hour weekly service in the chapel and sometimes people go to larger services at Ijika church, particularly for major church festivals and confirmation ceremonies. People from the neighbouring villages [525] of Mosou and Hahemo often attend the chapel services, which are also a social occasion, with people in their best clothes and even gambling afterwards. Perhaps mainly for this reason, non-Christians occasionally attend the services as 'hearers' (in the mission terminology). Little time is spent on purchasing goods in trade stores. The most regularly used stores are the one in the village, those at Ijika and the settlement blocks (which are about one hour's walk from Inonda), and those in Popondetta - particularly Oro Ltd's store and stores owned by Chinese - about 2.75 hour's walk away. Despite the distance to Popondetta, it is frequently visited, often by getting a lift from a passing truck (or, during the survey, from the researchers). Little time was spent in meetings: 57.6 man-hours were spent on the day of polling for the House of Assembly and most of the rest was expended by the entrepreneur in discussions with administrative and agricultural personnel in Popondetta. In addi- [575] tion, one woman attended the Hohota Women's Club meetings during period I before the club ceased functioning.

Social obligations involve individuals for an average of 4.2 512 hours per week. During 1964 in Inonda, only 0.2 hours per week 574 (76 hours in all) were related to life crises and these were almost

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The organisation of work by households

There is very little difference between households in the total amount of time spent each man-week on all the different activities. With the exception of the widower in household 19, the range is from only 2.2 hours below to 2.9 hours above the mean of 43.5 hours per man-week. However, there are considerable differences between households in the proportions of labour input allocated to the various activities (see Tables 7:5 and 7:6). Most spend roughly comparable proportions of their time in garden clearance. Households 19 and 24 are exceptions. The former, a widower, did a considerable amount of clearing on behalf of the widow in household 18. The couple in household 24 likewise gave help in clearing and planting, to household 23 in particular. [476]

There are wider differences in the time allocated to subsistence gardening. Households 18 and 24 spend most time in gardening, followed by household 19. Although this may partly reflect a greater amount of time required by the older people comprising these households to achieve subsistence, it is significant that 18 and 24 are also pre-eminent in the amount of garden produce disposed of each week and that the widower in household 19 puts a greater proportion of his working time than anyone else into assisting others (see Table 11:8). The head of household 18 is a widow (successively of three Inonda men) and has only permissive rights to Inonda lands. Household 24 is in a somewhat similar position, being resident because two daughters are married to Inonda men, and it seems likely that both these households strengthen their positions in the village through generosity towards others.[1] In return for his assistance, the widower receives most of his food from others and so spends little time in cooking. Three households devote less than the average amount of time to gardening. Household 23 instead spends more than the average in entrepreneurial activities and in activities connected with the external agencies; household 21 also devotes considerable time to the latter, including purchasing and church services. Apart from the widower, household 17 has the shortest working week. [437]

The three households spending most time in gardening spend least in the other food-producing activities - fishing, hunting, gathering of forest products and sago-making. In activities demanding agility or stamina younger people are naturally more prominent. The head of household 20 is the best marksman and hunts frequently. He also helped a cross-cousin in sago-making and his wife often fishes. In fact, this household spends more time in this class of activity than

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[1] Crocombe (1966:78) considers that this was the basic motive for a birthday party given by the head of household 24 in 1962.

[TEXT CONTINUED ON PAGE 143]

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Table 7:6

Inonda: activity patterns of households (adjusted)†

Household	Number of man-weeks	Total hours: Household tasks	Total hours: Total	Hours per man-week: Household tasks	Hours per man-week: Total
16*	71.4	669.1	3,559.4	9.4	49.8
17*	53.9	571.2	2,574.0	10.6	47.8
18	26.1	388.7	1,384.4	14.9	53.0
19	26.0	22.5	873.7	0.9	33.6
20	51.6	521.0	2,741.1	10.1	53.1
21*	45.4	518.9	2,414.5	11.4	53.2
22	19.1	148.1	976.2	7.8	51.1
23*	49.7	583.3	2,617.2	11.7	52.7
24	38.1	436.7	1,880.1	11.5	49.3
Total	381.4	3,859.5	19,020.6	10.1	49.9
Cash croppers	220.4	2,342.5	11,165.1	10.6	50.7
Non-cash croppers	161.0	1,517.0	7,855.5	9.4	48.8

† Table 7:6 shows the relevant parts of Tables 7:3 and 7:5 recalculated taking the adjusted average figure for household tasks into account. For an explanation see p.136.

* Cash cropping households.

in gardening. Although the leading man is one of the most successful hunters, his household spends a little under the average amount of time on these other food-producing activities, and only a small amount of time is devoted to sago-making in comparison with several other households - notably 16, 17 and 21.

The remaining subsistence activities are the preparation of tools and equipment, and construction. As household 22 did not build a house on the new village site it spent little time on this category of activity. In contrast, the men in households 19 and 21 helped the widow build her house, as well as joining the other men in building the copra-drier, and these households have the greatest weekly input of labour into these activities. There is little difference between the levels of the other households.

Only three households spent one or more hours a week on cash cropping. Two of these have mature coffee trees and the third is establishing a new coffee garden. In addition to looking after their own coffee, members of household 16 assisted kinsmen in Ijika and on the settlement block in establishing and maintaining coffee and cocoa trees. The head of this household is the only member of the OCGS in Inonda. While most of the time spent on cash crops by households 16 and 21 was on coffee, much was on the copra project,

512 and this latter accounted for most of the time household 23 devoted
461 to cash cropping. It is interesting that household 17, which owns
107 mature coffee trees, spent less time on them during the survey
512 than household 18, a non-cash cropping household, spent in assisting others with their coffee. The head of household 17 expressed dissatisfaction with his returns from coffee and did not fully harvest the yield of his trees, although the price was double that of the previous year. The small amounts of labour spent in cash cropping by other households result from their assisting owners of coffee trees and collecting and opening coconuts in the communal copra project. Although the inputs of labour by non-cash cropping households are small, even those of households 16 and 21 amount to only 5 per cent of their total activity time. Apart from the widow and widower, these same household spend the lowest proportion (both 3 per cent) of their time in paid work.

All the households spent some time in cash-producing activities, but the widow and widower only assisted others in cash cropping and the heads of households 22 and 24[1] worked only in paid employment. For the Jego'undi man in household 22, paid work was the single most time-consuming activity, exceeding subsistence gardening in spite of his household spending more time in gardening than the average, and it is worth noting that this household entered least into subsistence transactions but disposed of more than average amounts of storebought foods.[2] It seems likely that in 1964 the absences of the household head in paid work and of the whole household on a two-week fishing expedition required unusually intensive work in gardening at other times to ensure subsistence. This household receives no labour assistance from others, whereas the entrepreneur's household (23), which devotes the second highest amount of time weekly to cash-producing activities and the second lowest amount to gardening, receives considerable assistance through labour services[3] and this household is prominent in transactions of subsistence as well as of storebought produce. These two households have the lowest cultivated area per household member in the village. It appears that those who engaged in full-time wage employment for more than two or three consecutive weeks find it difficult to maintain their gardens and therefore meet their traditional obligations in the

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[1] The household head has no rights to land for cash cropping in Inonda. See p.60.

[2] See Tables 11:8 and 11:9.

[3] The difference may be due to the fact that the head of household 23 is the head of the dominant lineage, the most educated, experienced and prestigious man in the village. The head of household 22, on the other hand, was the sole adult member of his lineage and a marginal member of the village. He left Inonda during the survey.

592 exchange network and they must use cash and storebought goods to
512 compensate for this.

Few households differ greatly from the average in the amount of
●[461] time they devote to household tasks. The widower, like most men, seldom cooked, whereas in household 18 the widow's son was rarely
[462] present and the mean weekly time spent in household tasks is strongly influenced by the time spent in cooking by the widow. Household 16 appears to spend less than the average time since it contains two men as well as the wife's mother, who does not cook as often as her daughter. The small amount of time spent by household 22 is probably due to the fact that the members had comparatively few clothes and so little time was spent in washing.

164 As mentioned, much of the time shown as spent in sickness involves visits to the aid post and particularly to the fortnightly infant welfare clinic. Households containing small children, then, appear to spend most time in sickness. When days, rather than hours of sickness (including periods spent outside the village at hospital or the aid post), are taken into account, it is the households containing people over 45 that are most often sick. Household 24 spends on average 1.3 days per man-week in sickness. In addition to regular fevers, the household head suffered an anal prolapse in August and he and his wife spent the last 19 days of period II at Saiho hospital. Households 18 and 19 have the next highest sickness rates. Household 16 also has a comparatively high rate, largely because of the presence of the wife's aged mother but also because the whole household was sick with influenza during most of the last two weeks of the survey. All of the other households spent less than half a day per week in sickness.

592 There is not much difference between households in the amount of time spent on social obligations. The widow and the wife of the
512 head of household 21 spend rather more time than others in visiting, while the entrepreneur's household, (23), and the widower do little, and the latter was also unable to attend two feasts on account of sickness.

592 In addition to differences in activity patterns between the individual households, certain distinctions appear between cash
512 cropping and non-cash cropping households as groups. As is to be expected, cash cropping households spend more time in planting and
461 tending commercial trees. Non-cash cropping households spend only 0.2 hours per man-week in cash cropping, assisting others and working on the copra project, but even cash croppers spend an average of only 1.5 hours per week on their trees. The two categories devote a similar amount of time to paid work and entrepreneurial activities - primarily because the Jego'undi man's period of work on the settlement block was intensive enough to outweigh the effect of the older non-cash croppers, who did no paid work. On average, people in non-cash cropping households spend 3.5 hours more per

592 week than those in cash cropping households in subsistence garden-
512 ing and also more time in clearing, even though one of the former
was clearing a garden for coffee. This is largely the result of
461 the efforts of the widow and widower and household 24 in assisting
others, as described above. Balancing the greater amount of time
spent by non-cash cropping households in productive subsistence
activities, the cash cropping households spend more time in tasks
concerned with the external agencies, particularly purchasing, in
household tasks and in sickness and care of the sick. This last is
[757] without taking the separately-recorded days of sickness into account.
In fact, the non-cash croppers, being generally older, are more
liable to prolonged periods of sickness and are also more reluctant
to go to the aid post when sick - often instead using a stinging
leaf known as irongo as a counter-irritant for a variety of ills.
In addition, three wives of cash croppers attended the infant
welfare clinic regularly but only one non-cash cropping woman had
an infant child. Table 7:7 shows details of these separately-
recorded days of sickness, including sickness during absences.

Table 7:7

Inonda: days spent in sickness per man-month

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	Cash cropping households	Non-cash cropping households
Personal sickness:		
within village	0.8	1.5
outside of village	0.5	0.7
Care of sick:		
within village	0.1	-
outside of village	-	0.7
Total	1.4	2.9

592 512 461 Although the cash cropping households have, on average, a longer working week than others, it is clear that this is not due simply to time spent on their cash crops. It is noteworthy that non-cash cropping households, as well as spending a greater proportion of time in subsistence gardening, also dispose of slightly more garden produce per week than the cash cropping households, while the latter record a net inflow of garden produce and dispose of more store-bought foods (see Tables 11:8 and 11:9).

The division of labour: the influence of sex

462 Table 7:8 shows the division of labour between the sexes. As would be expected, men perform the major part of the heaviest tasks, including planting crops as well as clearing and fencing gardens,

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mainly on Wednesdays on the rare occasions when it is performed; 512
services are naturally on Sundays though there is a lesser concentration on Friday due to the effect of the two Good Friday services and the occurrence of Christmas Day on a Friday in 1964. Council work on cleaning household areas is spread much more over the week than the ideal suggests, but communal cleaning of the village square [527]
is usually restricted to Fridays. The ideal of Sunday as a day of rest is not entirely borne out, in reality. The mean duration of activity on Sunday is 5.7 hours, little below the mean for the other days, but the activities pursued tend more towards leisure than on other days. Thus, 1.2 hours are taken up in social obligations, 0.6 hours in church services and 1.1 hours in hunting and fishing; the latter is often associated on Sundays with 'picnics'.

The 'ideal' pattern excludes many of the village activities, but some of these also are carried out more on certain days than on others. Marketing is restricted to the Popondetta market-days (Wednesdays and Saturdays). The increased emphasis on hunting and fishing on Fridays is designed to provide commodities for sale in the major Saturday market. The incidence of paid work is naturally almost entirely on weekdays since employment of labour is almost exclusively by Europeans; the small amount of weekend work was on the construction contract at the airstrip. As explained, the concentration of hours of sickness on Wednesdays is due to the fortnightly infant welfare clinic at Ijika. Social activities other than visiting and those associated with deaths are now more or less confined to the weekends, often extending from midday or earlier on Saturday to after dawn on Sunday. The only other activity with a notable periodicity is purchasing, this being mainly carried out on Saturdays, either after marketing or as an isolated activity.

The duration of activities

Table 7:11 shows the mean duration, in hours, of each activity 461
and the standard deviation from the mean. It also shows the mean
time of day at which each activity occurs, in terms of the mean 512
mid-point of the period shown in the 'duration' column and the standard deviation from this mean. There is clearly a wide range in the duration of individual activities and in three cases (the weeding of minor crops, entrepreneurial activities and church services) the standard deviation exceeds the mean duration. The mean duration of a session of forest clearance is three hours, but two-thirds of all sessions last between one and five hours.

The mean duration of sessions devoted to specific garden tasks, such as planting or harvesting taro, is comparatively short, since several different tasks are commonly performed during a single visit to a garden. People usually leave for the gardens in early or mid-morning and return in mid-afternoon. With cash crops a whole

[TEXT CONTINUED ON PAGE 153]

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Table 7:11

Inonda: the mean duration and mid-point of activities
(hours)

Activity		Duration	Standard deviation	Time of mid-point	Standard deviation
Clearing		3.0	2.0	1240	2.2
Fencing		3.5	2.2	1240	3.2
Taro	- plant	2.0	1.2	1230	2.6
	weed	2.1	1.4	1225	2.7
	harvest	1.5	1.1	1219	2.6
Sweet potato	- plant	1,7	1.0	1355	2.6
	weed	1.5	1.1	1353	2.5
	harvest	1.1	0.9	1228	3.0
Yam	- plant	2.0	1.3	1300	2.3
	weed	2.7	2.4	1331	1.0
	harvest	2.2	1.3	1229	2.4
Minor crops	- plant	0.9	0.9	1400	3.1
	weed	0.9	1.1	1342	2.7
	harvest	0.9	0.8	1330	2.6
Fishing		4.8	2.8	1355	2.2
Hunting		4.1	2.9	1331	3.9
Gathering		0.8	0.8	1418	2.6
Sago-making		8.0	2.9	1219	1.2
Preparation of tools and equipment		1.8	1.3	1125	3.4
Construction		2.9	2.3	1200	3.2
Coffee	- plant	2.9	1.6	1041	2.5
	maintain	5.3	2.0	1125	1.2
	harvest	5,0	2.0	1112	1.5
	process	4.5	1.3	1050	1.1
Cocoa	- maintain	4.5	2.6	1313	-
Copra	- maintain	3.7	0.5	1037	0.2
	harvest	2.4	2.1	1105	0.9
	process	1.3	1.2	1406	2.6
	market	4.3	-	1613	-
Marketing other products		5.9	2.4	0955	3.5
Paid work		7.8	3.7	1218	2.3
Entrepreneurial activities		2.9	3.1	1206	2.3
Household	- washing	0.6	0.5	1348	2.8
	cooking	1.8	0.9	1406	3.4
	collecting firewood	0.4	0.2	1525	2.6
Social obligations					
	- marriage	3.3	2.5	1112	4.0
	death	11.3	4.0	0912	-
	other	6.2	4.0	1446	6.7
	visits	4.1	3.2	1336	3.4
Sick	- personal	1.9	1.0	0836	1.3
	care of	3.0	1.6	1155	2.8
Purchasing		3.6	2.2	1237	3.4
Council work		1.0	1.0	1030	3.9
Meetings		4.5	1.7	1142	0.9
Church work		2.1	1.5	0930	1.9
Church services		1.0	1.3	0730	0.8
Recreation		4.4	4.1	1436	3.2
Other		3.1	3.1	1223	3.2
Researchers		3.7	3.6	1205	2.9

Table 7:5

Inonda: activity patterns of households over the whole survey period
(hours per man-week)

Household no.	16*	17*	18	19	20	21*	22	23*	24	All households		Cash cropping households		Non-cash cropping households	
										Total	Mean	Total	Mean	Total	Mean
No. of adults	4	3	2	1	3	2	2	2	2	21		11		10	
No. of man-weeks recorded	71.4	53.9	28.1	28.0	51.6	45.4	19.1	49.7	38.1	381.4		220.4		161.0	
										(hrs)		(hrs)		(hrs)	
Clearing	2.2	2.5	2.0	4.8	2.7	2.3	1.9	3.5	4.9	1,107.9	2.9	566.2	2.6	541.7	3.4
Subsistence gardening +	11.7	10.0	16.3	13.5	11.3	8.8	12.2	9.8	16.2	4,479.3	11.7	2,263.0	10.3	2,216.3	13.8
Other subsistence food production	7.9	8.9	4.7	4.6	12.0	8.1	5.6	7.1	4.5	2,869.5	7.5	1,723.8	7.8	1,145.7	7.1
Other subsistence activities	2.7	2.8	3.2	5.9	3.7	5.4	0.8	3.3	2.6	1,292.7	3.4	751.5	3.4	541.2	3.4
Cash cropping	2.3	0.4	0.8	0.2	0.2	2.1	-	1.0	-	365.5	1.0	329.3	1.5	36.2	0.2
Paid work and entrepreneur	1.5	2.6	-	-	2.5	1.4	13.2	3.7	1.8	1,042.6	2.7	591.7	2.7	450.9	2.8
Household	3.8	4.1	4.0	0.9	4.0	4.7	1.0	4.9	4.2	1,459.5	3.8	944.4	4.3	515.1	3.2
Social obligations	4.6	4.2	6.1	2.2	3.6	5.5	4.5	2.7	4.2	1,595.7	4.2	944.6	4.3	651.1	4.0
Sick	2.7	2.4	1.4	0.1	1.5	2.0	-	1.3	0.1	598.5	1.6	475.4	2.2	123.1	0.8
External agencies	3.6	2.9	2.8	1.0	2.7	4.7	1.4	4.8	2.8	1,241.6	3.2	864.6	3.9	377.0	2.3
Other	1.3	1.3	0.8	0.4	2.4	1.4	3.9	1.7	0.7	567.3	1.5	312.5	1.4	254.8	1.6
Total	44.3	41.3	42.1	33.6	46.4	46.4	44.4	45.8	42.1	16,620.3	43.5	9,767.0	44.4	6,853.3	42.6
Mean length of active day**	6.5	6.1	6.7	5.1	6.8	6.7	6.7	6.9	6.6						

* Cash cropping households.
** Excluding days sick.

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morning or, less frequently, a whole afternoon is devoted to a particular task of cultivation, whether planting, maintaining, harvesting or processing and the mean duration of each of these activities is longer than for subsistence garden tasks. 461 512

As described,[1] the longest working sessions are spent on sago-making: 68 per cent of these sessions last between 5 and 11 hours. Thus, when a sago-palm is being harvested, men have little time for other tasks. Paid work also tends to preclude other activities by occupying the bulk of the daylight hours and the same is largely true of the fulfilment of most social obligations. Although many social occasions, particularly feasts and parties, take place during or continue into the night, the daylight hours beforehand are usually taken up with preparations, including the construction of shelters and the harvesting of food. Hunting and fishing both occupy on average more than four hours at a time. Fishing usually takes place in daylight hours, whereas people hunt mostly at dawn or dusk[2] and hunting does not therefore prevent the performance of daytime activities.

Most of the activities shown in Table 7:11 have a mean mid-point falling between about 11 a.m. and 2 p.m. Activities occurring early in the morning are church services, 'mission' work, visits to the aid post (personal sickness) and visits to Popondetta market.

The journey to work 461

Table 7:12 shows the proportion of total time spent on different classes of activity in travelling: part A shows the details for people while resident on the old village site and part B for the new site. Owing to the method of coding for computation, it was not possible to make allowance for the performance of several tasks at one site; where, for instance, a woman visited a garden and spent some time in clearing, some in weeding and some in harvesting and also visited another site on her way home, each period was recorded separately, thus exaggerating total travel time. An attempt was made to reduce the exaggeration by recording separately the occurrence of such duplicated times and these have been subtracted from the total, but not from the grouped activities. Most of these duplications were in clearing and gardening activities. Applying therefore an arbitrary proportion of 70 per cent of the

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[1] See p.133.

[2] This bi-modal distribution for hunting invalidates the mean mid-point of 1331 (1.31 p.m.) hours shown in Table 7:11. To some extent the same is true of cooking, since most cooking is in early morning for breakfast and in late afternoon for dinner. [252]

Table 7:12

Inonda: time spent on travelling as a percentage of total time spent on grouped activities

	Percentage of total time	
	A. Old site	B. New site
Clearing	23	17
Subsistence gardening	45	42
Other subsistence food production	24	22
Other subsistence activities	15	8
Cash cropping	36	19
Paid work and entrepreneurial	27	23
Household	39	19
Social obligations	29	41
Sickness	68	50
External agencies	38	40
Other	62	74
Total	34	32
Corrected total	26	25

total correction of multiple occurrences to the travel time involved in gardening and 12 per cent in clearing, the corrected figures appear as in Table 7:13.

Table 7:13

Inonda: time spent travelling as a percentage of total on task

	A. Old site	B. New site
Clearing	11	3
Subsistence gardening	25	25

In general, the move to the new site was associated with reduced time spent in travelling to work places. This change is particularly significant in the case of garden clearing: the main blocks of gardens cleared during 1964 were all within ten and mostly within five minutes' walk of the new village site, but at least twenty minutes away from the old site. Gardens being cultivated and harvested during 1964 were even further from the old village site; thus, as the newly-cleared gardens approached maturity, the villagers could spend a higher proportion of time in cultivation rather than in walking. On the other hand, the transfer of residence meant a greater walking distance to some of the gardens established in 1963 and being extended during 1964. In addition, closer proximity of the new gardens to the village made frequent brief visits possible, which partially counteracts the effect of the reduced travelling time. However, all of the most distant gardens were fully harvested by the time the village move was completed. 461

Other subsistence activities also show a significantly lower proportion of time spent in travelling from the new site compared with the old: this is because almost all construction, including the copra-drier as well as houses, took place at the new village. Some people reduced their travelling times at an early stage by erecting temporary shelters on the new site to live in while building their homes. By the time of period III, the other subsistence activities were restricted to those pursued in the village, such as making mats or string bags. The reduced time spent walking from the new site to work on cash crops results from a concentration on copra production within or adjacent to the new village at the expense of work in the more distant coffee gardens. The established coffee gardens are about twenty minutes' walk from the old site but forty minutes from the new village and the distance involved resulted in a decision to establish new coffee gardens nearer the new village. As described,[1] the first choice was land about twenty-five minutes' walk away, but eventually all but two men decided to utilise the food gardens only five minutes from the village. The other two planted coffee near the Sambogo river where there is plentiful water for pulping and washing the cherries. [342]

The apparent reduction in travelling times for household chores is illusory. The observers were able to cover activities such as cooking far more completely at the new site; the distance to the nearest water supply was not diminished by the move. The distance to the aid post where the infant welfare clinic is held was, however, considerably reduced.

Three categories of activity show an increase in time spent travelling. This reflects more frequent journeys after the move to places further afield, such as Popondetta, Saiho and Kendata, but this increased frequency was not a function of the move itself. During period I, when most people were still resident in the old village, most of the social occasions took place there or in nearby villages whereas, later in the year, feasts were attended in more distant places. 484

The performance of individual tasks

On a number of occasions, detailed observations were made of the time involved in carrying out various tasks and the results are shown in Table 7:14. Each activity has been divided into different phases: travelling, resting and eating, performance of the main task, 461

[TEXT CONTINUED ON PAGE 157]

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[1] See p.59.

Table 7:14

Inonda: the allocation of time within certain activities
(minutes and per cent)

Activity*			Travel	Rest and meals	Main task	Ancillary tasks	Other tasks	Cooking	Washing	Total
Clearing	(12)	Mean duration	48	62	109	4	13	5	8	249
		Per cent	19	25	44	2	5	2	3	100
Planting taro	(2)	Mean duration	24	23	38	-	25	-	-	110
		Per cent	22	21	34	-	23	-	-	100
Planting sweet potato	(3)	Mean duration	46	39	37	-	63	-	1	186
		Per cent	25	32	20	-	33	-	-	100
Inspection of garden	(1)	Mean duration	30	-	13	-	17	-	-	60
		Per cent	50	-	22	-	28	-	-	100
Weeding taro	(6)	Mean duration	91	61	93	12	22	8	2	289
		Per cent	32	21	32	4	7	3	1	100
Collecting taro-tops	(1)	Mean duration	15	17	51	-	4	-	-	87
		Per cent	17	19	59	-	5	-	-	100
Collecting taro	(2)	Mean duration	12	1	30	-	12	-	-	55
		Per cent	22	2	55	-	21	-	-	100
Sago-making	(11)	Mean duration	47	150	251	45	3	1	-	497
		Per cent	10	30	50	9	1	-	-	100
Weeding coffee	(2)	Mean duration	49	62	144	-	25	-	3	283
		Per cent	17	22	51	-	9	-	1	100
Cooking	(1)	Mean duration	-	12	30	-	16	-	-	58
		Per cent	-	21	52	-	27	-	-	100
Total	(41)	Mean duration	49	77	128	15	15	3	3	290
		Per cent	17	27	44	5	5	1	1	100
Cash croppers	(28)	Mean duration	43	85	135	18	16	2	3	302
		Per cent	14	28	45	6	5	1	1	100
Non-cash croppers	(13)	Mean duration	61	59	113	9	12	4	3	261
		Per cent	23	23	43	4	4	2	1	100

* Figures in brackets indicate number of observations of activity.

ancillary tasks, other tasks unrelated to the main task, cooking and washing. 461

The activity observed most frequently was forest clearance. Over twelve occasions, the main task occupied 44 per cent of the total time. Due to the intensive and exhausting nature of the work, resting and eating occupies one-quarter of the time. For the same reason, almost one-third of the time spent on sago-making is in resting. Sago-making is the most intensive of all the activities practised by Inonda people: the observed occasions have a mean duration of over eight hours, 50 per cent of which is spent on the main task of producing the starch. Subsistence gardening tasks are in general less intensive than sago-making or clearing: travelling to the place of activity accounts for a higher proportion of the time, and work on the main task and other tasks amounts to less than half the total. Resting, however, accounts for less of the total than it does with sago-making. The planting and harvesting of taro appear to involve the most intensive work in gardening.

Overall, time spent working on all tasks as opposed to time spent resting or travelling appears to be between 50 and 60 per cent of the total. There is no significant difference between cash croppers and non-cash croppers. The latter tend to spend a greater proportion of their time in travelling - perhaps because they are mostly older people. Time saved in travelling by cash croppers seems to be used as much for leisure as for productive work.

The nature and size of work groups

Most activities are carried out by individuals working alone (see Table 7:15), although husband and wife often perform separate tasks in the same garden. Tasks in food gardens are rarely performed jointly: only in harvesting yams and fencing does the mean size of work group reach even 1.5 individuals. However, certain other subsistence activities do involve larger work groups. Of these, sago-making involves the largest mean number of people, since a sago-palm contains enough food to maintain several families for some weeks and it requires intensive labour to extract the starch before it spoils. Thus, those who decide to harvest a palm almost invariably call on others for assistance.[1] Spear-fishing is often undertaken by individuals alone, but groups of men or a number of households may fish together at a particular place. The largest fishing groups occur on the rare occasions (twice during the survey) when large nets are used. At such times people from several villages (Inonda, Hosou and Ijika) may collaborate to spread the nets (one from each village) across the river, to construct temporary dams of 226 476

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[1] See p.260. A

[TEXT CONTINUED ON PAGE 159]

A,[See Category 476, p.260--Analyst]

Table 7:15

Inonda: the mean size of work groups in productive activities

Activity			Mean no. of individuals in work group
Clearing			1.4
Subsistence gardening	Fencing		1.6
	Taro	- plant	1.3
		weed	1.2
		harvest	1.1
	Sweet potato	- plant	1.2
		weed	1.0
		harvest	1.1
	Yam	- plant	1.1
		weed	1.0
		harvest	1.5
	Minor crops	- plant	1.0
		weed	1.1
		harvest	1.2
Other subsistence food production	Fishing		2.8
	Hunting		1.4
	Gathering		1.2
	Sago-making		3.7
Other subsistence activities	Preparation of tools and equipment		1.1
	Construction		2.5
Household	Collecting firewood		1.1
Cash cropping	Coffee	- plant	1.5
		maintain	2.0
		harvest	2.3
		process	1.7
	Cocoa	- maintain	1.7
	Coconuts for copra	- maintain	5.0
		harvest	7.1
		process	3.8
		market	1.0
Marketing of other products			1.8

226 branches and to drive the fish into the nets. On both occasions
476 during the survey over twenty people were involved. Operations such
as these are initiated by the older men. Participation is voluntary
and seems to be based on residence as much as kinship.

Construction of houses generally involves some collaboration in
342 erecting the timber frame and in preparing roofing sheets from sago-
palm leaves, but much of the construction is carried out by the
●461 houseowner alone. When assistance is received, it may be from a
476 wide range of kin, including agnates, matrilateral kin and affines.
The main reason for the size of work group shown as involved in
construction at Inonda is the erection of the copra-drier when all
the men in the village collaborated.

461 It is worthy of note that, except for fishing and sago-making,
all activities involving larger work groups are non-traditional
178 activities directly associated with the monetary sector. The
largest work groups occur in copra-making and the next largest in
cultivation of coffee. As described above, copra-making was
[245] initiated by the entrepreneur as his own project but subsequently
others combined to make it a village project. Cultivation of coffee
is carried out usually by members of the household that owns a
garden, sometimes assisted by other kin who have no cash crops or
by young unmarried men. There is, then, a clear differentiation
between traditional and post-contact activities in terms of the
organisation of work groups.

The activity patterns of selected individuals (see Table 7:16)

166 Isemba. This man is unmarried, aged 21 and lives in the household of his elder brother. He reached standard V at Ururu mission school and began training as an aid post orderly at Saiho hospital, but left after eleven months, feeling that his current conditions and future prospects were not satisfactory. He then lived for some months with a relative of the same lineage at Ijika, returning to Inonda for several weeks during periods I and II and remaining permanently from late August onwards. In total, Isemba was absent for 85 days, 92 per cent of which were on visits either to his lineage brother or, for shorter periods, to other relatives. For 3 of the remaining 7 days he was sick and stayed at Habema village, 2 days were spent at a feast, 1 at a party and 1 looking for work at Popondetta.

Isemba's observed activity patterns seem fairly representative of the behaviour of young
[461] unmarried men in the area. Probably his attitudes are also quite widely shared: although
[464] he frequently helps his brother and other kin in Inonda and other villages in subsistence
tasks and cash cropping and will almost certainly settle in the village when he marries,

166 464 461 he expresses at present a preference for paid work and spent over 27 hours, in addition to one full day, seeking employment. However, the only paid work he obtained was on the entrepreneur's construction contract at the airstrip. Since the completion of road construction in the area, paid work other than labouring for settlers has been difficult to obtain. Isemba has sought work requiring responsibility, for instance, as a storeman, rather than casual labouring, but even in Popondetta responsible work is rarely available and there are many other men of similar age and with similar or better educational qualifications competing for the same few vacancies.

512 461 [226] Isemba is active for an average of 49.5 hours per week. His most time-consuming task is fishing, usually with friends of the same age, and this is probably regarded as recreation as much as productive work. It accounts for 20 per cent of the week's activities. Sago-making is also important in the dry season. In the category of other food-producing activities over one-third of the time spent in subsistence gardening is in planting taro, sweet potato and minor crops and one-half in clearing and harvesting. During period III, he made a garden independently of his brother for the first time. This was intended for his brother's wife's use and served as a return for the food he received as a member of the household. Productive subsistence activities account for 21.4 hours a week.

[434] Isemba's main cash-producing activity is paid employment. He also assists his brother and others in their coffee gardens and spends some time in marketing. In fact, he never acquired any cash in the Popondetta market: he threw away unsold sipero (limes) and gave unsold bush-turkey eggs to a friend. However, in November, he caught a 4 ft long crocodile in the Girua River and sold it to a Chinese merchant in Popondetta for $4.50. The 2.1 hours spent on purchasing are partly on his own account and partly as a service to others, since purchasing provides a reason for travelling and meeting friends.

[883] Apart from the category of other food-producing activities, social activities consume most time during the week, with a slightly higher proportion spent on visits than on organised feasts and parties. These visits are brief and distinct from those considered in discussing absences and are one of the most typical aspects of the behaviour patterns of young men. [796] A closely related activity is church attendance, which occupies over an hour a week because Isemba often walks to services at Ijika, again in order to meet his friends. His visits to the aid post take up more time than the average spent even by women with

461 infant children, partly because he suffered from a leg ulcer for some weeks, but also
512 partly because of the social aspect of such visits.

In all, productive tasks account for 32 hours, or 65 per cent of the total for the week, and two-thirds of this amount is spent in activities in the subsistence sector. Of the weekly total of 49.5 hours, 11.3 hours or 23 per cent are related to the monetary sector and external agencies such as the mission.

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[159 Lawrence. Aged 35, Lawrence is the leading man and entrepreneur. He is married and has four children, the eldest being a boy of twelve. Although he only reached standard IV at the mission school, he became a mission teacher and spent four of his five and a half years in this occupation in New Britain. He subsequently spent periods while resident in the village as a labourer and carpenter's assistant and served for two years as elected local government councillor for the villages of Isonda, Hohota, Mosou, Ajoro and Sewa. Lawrence acquired 230 coffee trees from his classificatory father and has rights to over 100 mature coconut palms. In 1963, he opened the trade store in the village. In November 1964 he had a total cultivated area of 1.23 acres, of which 0.9 acres were under taro. Unlike most other households, he has no sweet potato garden and only a token number of yam vines, cultivating banana, corn and Xanthosoma instead as subsidiary crops.[1] His household has a lower area of food garden per member than all but one other household and he spends less time in subsistence gardening than all the six selected individuals apart from Iemba.[2] Like most household heads, he is rarely absent from the village. During the survey he spent two days at a feast which almost everyone in the village attended, two days visiting his wife's father in hospital, two in Port Moresby with the researchers, one on work for the Administration during the national elections and one caring for his sick daughter. In addition, he was inactive through sickness - mainly influenza - for nine days.

Through a combination of several factors, including his position as senior resident member of the Andiriha clan, and the knowledge and experience gained during his periods as teacher and councillor, Lawrence is developing his entrepreneurial skills towards the

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[1] The same pattern was evident for this household in 1962 (G. Hogbin: personal communication).

[2] However, Lawrence's household is above average in terms of cultivated area per able-bodied person.

472 achievement of several ambitions, including the acquisition of a carpenter-built house. He spends more time on cash-producing activities than any other villager and is the recognised spokesman in all village-level contacts with the external agencies. Through his experience he was able to win and fulfil the construction contract at the airstrip, as well as arranging for the sale of hardwood trees to the Administration, which others could, but did not do. Half of the time spent on entrepreneurial activities is on the trade store and [512] [461] the rest mainly on the contract. As will be shown in Chapter 10, these activities are more rewarding than cash cropping, and the entrepreneur spends less than 0.5 hours a week on his coffee holding and 1.0 hour a week on copra. Paid work and the other main source of cash, marketing, account for only 1 hour a week. Altogether, involvement with the monetary sector and external agencies occupies about 19 hours a week, or 37 per cent of the total - a higher proportion than for any other villager.

461 The most time-consuming activity after entrepreneurial activities is hunting, although prior to his purchase of a shotgun in July Lawrence spent very little time this way. This and other food-producing activities occupy as much time as paid work and entrepreneurial activities and double the amount spent on subsistence gardening. Productive activities in both sectors account for almost 42 hours, 80 per cent of the weekly total.

It is clear that for the entrepreneur cash-producing activities have the highest priority once subsistence is assured. In this connection, it is noteworthy that during the dry season, the intensive labour by all the men on construction of the copra-drier took precedence over other activities, but when a pig invaded his garden Lawrence spent two days in fencing and only then resumed construction of the drier.

512 [527] [431] Marjorie. This woman is aged 21 and is married to Embogi's eldest son, who began establishing a coffee garden during the survey. They have one son, and held a party to mark his first birthday in March. Marjorie was born in Hohorita village, as were four other Inonda residents, and she was educated to standard V. Her father's brother is a teacher at Popondetta mission school, where several other relatives also work and she spent a considerable amount of time visiting these and other kin, usually taking gifts of garden produce and receiving in return storebought foods and cash. In addition to the average 2.7 hours a week spent in this way, she was absent for 13 days on visits and for another 6 days on mourning and funeral obligations when her father and her husband's mother's brother died within a week of each other. Her frequent visits and gifts to her kin were

[TEXT CONTINUED ON PAGE 164]

Table 7:16

Inonda: activity patterns of selected individuals

(hours per man-week)

Name		Cash croppers			Non-cash croppers		
		Isembe	Lawrence	Marjorie	Paulus	Menoko	Embogi
No. of weeks present		13.9	24.8	22.3	25.1	26.0	20.6
Subsistence							
i. Productive							
Clearing		1.6	4.1	0.9	3.3	4.8	1.9
Fencing		0.3	1.8	0.2	0.7	3.4	0.9
Subsistence gardening	- plant	2.5	2.2	0.8	3.6	5.5	2.9
	maintain	0.7	0.6	2.3	2.7	2.9	4.7
	harvest	1.8	1.0	6.5	1.3	1.8	10.7
Subsistence produce	- market	0.9	0.4	-	0.8	-	-
Other food production		13.6	11.5	5.2	16.9	4.6	2.2
Other subsistence activities		0.9	3.5	2.9	5.8	5.9	3.4
Household		1.2	1.5	7.8	1.2	0.8	4.7
ii. Non-productive							
Social obligations		7.5	2.9	5.3	3.3	2.3	4.1
External							
i. Productive							
Cash cropping	- plant	-	-	0.4	-	-	-
	maintain	1.5	0.6	0.4	-	-	0.5
	harvest	0.8	0.2	0.4	0.1	0.1	0.2
	process	0.2	0.4	0.2	0.2	0.1	-
	sell	-	0.2	-	-	-	-
Paid work and entrepreneurial activities		3.9	11.3	-	5.1	-	-
Purchasing		2.1	2.3	-	1.8	-	-
ii. Non-productive							
External agencies		1.9	3.5	4.6	0.9	1.1	3.0
Sickness		3.2	0.7	2.5	0.8	0.1	0.9
Other		4.9	3.0	1.2	4.2	0.4	0.2
Total		49.5	51.7	41.6	52.7	33.8	40.3
Percentage of total time spent in							
Productive activities		65	80	67	82	88	80

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512 criticised by her husband and by others, particularly when her husband's mother was sick at the aid post and he was left with no close relative to perform household tasks. Social obligations and other generally non-productive activities account for 33 per cent of the total time that Marjorie spends on her activities, compared with 20 per cent for the village as a whole, and the mean length of her working week was less than 42 hours compared with the village average of almost 49 hours. Apart from household tasks, the most important productive activity is harvesting of subsistence crops. Over half of this time is spent on taro and the rest on sweet potato, yams and minor crops. The other aspects of cultivation and clearing bring the total time on subsistence gardening to almost 11 hours [562] [462] a week; only taro receives any maintenance. Fishing - usually with a small net, in contrast with the spears used by men - is the most time-consuming of the other food-producing activities, although she also assists her husband in sago-making. Other subsistence activities are restricted almost entirely to making string bags and pandanus-leaf sleeping-mats.

The average weekly time Marjorie devoted to cash cropping equals that of the entrepreneur. She helped her husband establish a coffee garden and worked with the other villagers making copra. However, the time she spends in cash cropping is less than that spent in other activities related to external agencies. Of such activities, over one-third is on council work and almost one-third on meetings of the Hohota Women's Club; the rest is mostly on church services, since she often goes to the Ijika services held by close [461] kin of hers. In total, these activities and cash cropping account for 14 per cent of her activity time.

Although Marjorie invests sufficient time to maintain the household's gardens, it seems clear from the frequency of her contacts with her consanguineal kin in other villages and from the comparatively low proportion of her time devoted to productive labour that she is less oriented towards her village of residence than are the other wives, all but one of whom also originate from other villages.

Paulus. The younger of Manako's two sons, Paulus is aged 25, is married to the sister of the leading man's wife and has two sons (a third having died a few months before the survey began). He was educated only to standard I. Subsequently two and a half years were spent working as a surveyor's assistant in Port Moresby and some months as a labourer (and briefly as a foreman) on the roads near the village. He has no cash crop

512 holdings - his father's coffee plantation of over 100 trees was given to the eldest son - [461] but intends to plant both coconuts and coffee. He sees cultivation of cash crops as preferable to working away from the village since the former guarantee a continuing minimum income, but he believes that paid employment while resident in the village is the best source of cash. After the end of the survey Paulus, Lawrence and two others obtained work in Popondetta, returning home each night. Despite his lack of formal education and holdings of cash crops, Paulus is generally recognised as second in status to the leading man, and when the leader refused to be nominated for re-election as local government councillor, he was asked instead. He was prepared to stand, but eventually declined because of his wife's disapproval. When Lawrence proposed individual working of copra it was Paulus who insisted, successfully, that it should be communal, on the grounds that the others had insufficient palms to make individual working worthwhile. However, having gained his point, he was prepared to leave the sale of copra and the operation of the village savings account to the leader.

[461] On average, Paulus is active for more time per week than any other villager and over 82 per cent of his time is spent on directly productive tasks. He is recognised as the most accomplished hunter in the village as well as being skilled at fishing and, together with sago-making, these food-producing activities account for almost one-third of his activity time. He frequently borrows a shotgun from Lawrence or from kin living nearby and from [434] August onwards often took smoked meat or fish to market in Popondetta. As he has no cash crops his main sources of income are paid work, marketing and gambling, but only paid work consumes more than an average of one hour a week. Apart from the contract work, this includes work on the bridge over the Girua River during the first three weeks of the survey.

Although he spends more time on subsistence gardening than the cash croppers discussed above, Paulus spends much less in this work than the other non-cash croppers. Most time is spent in clearing and in planting and maintaining taro. He is one of the few with a significant number of yam vines, the crop occupying as much of his time as sweet potato [462] cultivation. As is usual for men, harvesting consumes little time, except for sugar-cane and coconuts.

The only other subsistence activity that accounts for a noteworthy proportion of Paulus' time is construction. Although much of this was, in fact, on the copra-drier, he spent

433 184 [241] [222] population in the two villages, it is estimated that the total land requirements per person in Sivepe are therefore only 2.5 acres compared with 14.8 acres in Inonda.[1] Given the lack of uniformity in the hinterland of a village which is located at the forest-grassland boundary, where subsistence is primarily derived from the forest and where garden land requirements are high, it is to be expected that travelling times would be higher for Inonda and that the economy should be diversified by using the non-cultivated areas. There are abundant sago palms in the swamps fringing the rivers and, in the absence of breadfruit (numerous in the cultivated areas at Sivepe), these are exploited in the dry season to compensate for the scarcity of garden foods. In fact, Inonda experiences both a drier and more distinctly seasonal climate and this, together with the greater abundance of land, accounts for the greater significance of supplementary food producing activities. Only hunting is practised to much the same degree in the two villages.

● 461 The transfer of Inonda to a new site did not lead to the expenditure of substantially more time on construction than in Sivepe, where the normal rhythm of repair and rebuilding was in operation. Since it is estimated that in Sivepe 0.7 of the 1.6 hours per man-week spent on construction are restricted to repairs and minor extensions to existing houses it seems that in Inonda, with the transfer in village site, such maintenance work ceased and the labour time so made available was directed entirely to constructing new houses. In effect, therefore, such moves are not as time-consuming as might be expected.

[m] The external sector of the economy absorbs 26 per cent of total activity time in Sivepe and 23 per cent in Inonda, but in both cases only about one-third of this is directed towards cash production. Rather more time is spent in dealings with the external agencies, particularly in Sivepe by virtue of its proximity to a mission station and location in a densely populated area which is more frequently the focus of Administration and commercial interests.

433 184 In Inonda paid work is considerably more important than cash cropping, but it is essentially of a casual and temporary nature

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[1] The estimation of land requirements is derived from the following formula (adapted from Allan 1949):

$$100 \frac{CL}{P}$$

where:

P = percentage of the group territory that is arable under the given technology.

C = number of annual garden areas utilised in the agricultural cycle of cultivation and regeneration.

L = acreage of cultivated land per head of population per annum.

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Table 8:1

Sivepe and Inonda: some contrasts in activity patterns
(hours per man-week)

	Sivepe	Inonda
Clearing	2.9	3.7
Subsistence gardening	13.2	11.7
(of which: taro gardening	9.1	6.6)
Other subsistence food production	2.5	7.8
(of which: fishing	0.2	3.8
hunting	1.8	2.0
sago-making	0.4	1.2)
Construction	1.6	2.0
Total - subsistence sector	30.0	33.5
Cash-producing	3.2	3.7
(of which: cash cropping	1.6	1.0
paid work	1.6	2.7)
External agencies	5.8	3.2
(of which: meetings	1.3	0.3
church work/ services	3.0	1.0)
Total - external sector	10.7	10.0
Total*	40.6	43.5

* A 't' test was applied to the mean weekly figures, to provide some measure of the significance of difference between the mean level of activity in the two samples, using the equation

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s'} \sqrt{\frac{N_1 N_2}{N_1 + N_2}}$$

where s' = the standard deviation of the population. t was computed to be 1.98; the means for the two samples are, therefore, significant at the 5 per cent level.

and was largely connected with the improvement of the Popondetta-Oro Bay road which passes by the village. In Sivepe both are of equal significance. While one girl was in permanent employment, she had assumed no major subsistence responsibilities, was single and, during the course of the survey, left the village to reside on the mission station adjacent to her place of work. 433 184

In each case several cash crops are grown, all of them tree crops. To some little attention is given (e.g. coffee in Inonda) while to others effort is restricted essentially to harvesting and the subsequent processing and marketing of the harvested product (e.g. coffee and rubber in Sivepe, coconuts in Inonda). Further 433 179

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three elements of change, first, a trend towards the amalgamation of hamlets into larger units which assume the formal layout now characteristic of Sivepe, second, considerable mobility of settlements, and third, a high degree of individual mobility. However, the first and second he considers to be largely a function of Administration pressures and of ill-defined aims to improve the economic base of their livelihood (as is characteristic of Sivepe's intended move), and the third to be related to the 'vicissitudes of social relationships' rather than to any connection between settlement and garden sites.

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The changes which have taken place in the range and relative importance of subsistence crops largely reflect the need to find a more reliable and adequate food supply during the dry season, although the tendency to increase the acreages of both yams and *Xanthosoma* at the expense of sweet potato and taro might also reflect a conscious effort by some to economise on time and effort in the subsistence sector.

433 184

The survey of activity patterns reveals little variation within the samples in the relative importance of the subsistence and external sectors: even those most strongly oriented to cash cropping are concerned first with achieving subsistence. The two most active people in the Sivepe sample, Linton and Palminus, register an above average level of activity through the whole range of tasks, the manner in which they allocate their time being proportionately little different from that of the sample as a whole. This applies equally to the entrepreneur in Inonda, who spends over half his working week in productive subsistence activities. His entrepreneurial activities are directed primarily towards a trade store which is not particularly demanding in terms of his time. In this respect his cash-producing preferences parallel those of other men where contract or casual work is preferred since, in the absence of strict schedules, it conflicts little with the requirements of the subsistence routine.

[461]●

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There is little difference between attitudes toward cash and toward subsistence crops. In particular the attention given to the commercial trees parallels that given to coconuts, *areca*, breadfruit and other economic trees associated with the subsistence sector in that, apart from planting and harvesting, maintenance is essentially restricted to facilitating access. The absence of any specialised techniques of arboriculture is carried over from subsistence to cash crop trees, the only distinction being that the cash crops are planted in formal stands. The work routine is much the same in that sustained and regular effort is neither required or given and the duration and intensity of individual periods of cash cropping work differ little from that for productive subsistence work.

249 While efforts have been and continue to be made to organise
476 communal cash cropping, based initially on the expatriate assump-
tion that voluntary co-operative effort is a feature of the culture
and an instrument for increasing productivity, they largely fail.
Although the communal rubber planting in Sivepe continues to be
worked, this is not a reflection of good management but rather of
the intrinsic hardiness of a tree which has been planted in its
natural habitat, the forest, and is subject to the depredations of
461 few diseases or pests. In Sivepe, work groups in cash cropping are
184 no larger than in subsistence, although in Inonda they are sub-
stantially bigger, perhaps on account of the influential role of
the entrepreneur. The point remains that work groups incorporating
individuals other than members of an individual's families of
procreation and orientation are not typical of subsistence produc-
tion in this area, with the exception of those activities which
physically require the participation of a large number of people as,
for instance, sago-making.

In both communities the choice appears to lie between subsistence
433 production plus peripheral commercial activities on the one hand and
migration out in search of full-time employment on the other. In
184 Sivepe the latter course is frequently taken, not only by single
men, but also by some with dependents, who remain in the village in
166 the care of parents. With 37.8 per cent of the potential adult male
464 labour force absent and a number of dependents staying behind, a
considerable burden is placed on the remaining residents in Sivepe.
Only 25 per cent are absent at Inonda and no dependents have been
left in the village. Although the distinction is not manifested
directly in the length of the activity week in the two villages,
it probably accounts for the greater incidence of temporary absences
recorded in the latter - 17 per cent of total available labour time
compared with 6 per cent in Sivepe - in that the slightly higher
proportion of adult males to total population makes the subsistence
economy less restrictive on individual mobility.

433 While activity patterns suggest that cash-producing activities
are added to the subsistence pattern with little apparent stress,
the question does arise as to whether given the existing technology,
socio-economic matrix and level of productivity the communities
have already expanded their commercial activities to the optimum
level. There is no evidence that the expansion of cash cropping
and paid work has resulted in any commensurate contraction in the
time devoted to non-productive activities. The data confirm Fisk's
general hypothesis (1962) concerning the availability of surplus
labour. Although the Orokaiva are, by any objective standards, a
reasonably active people who spend little time on informal social
and ceremonial activities associated with the subsistence sector,
and although, perforce, activity is restricted essentially to the
daylight hours, there are some 6 hours per man-day remaining
apparently unutilised. At present this time is distributed between
resting, eating meals and informal socialising within the village.

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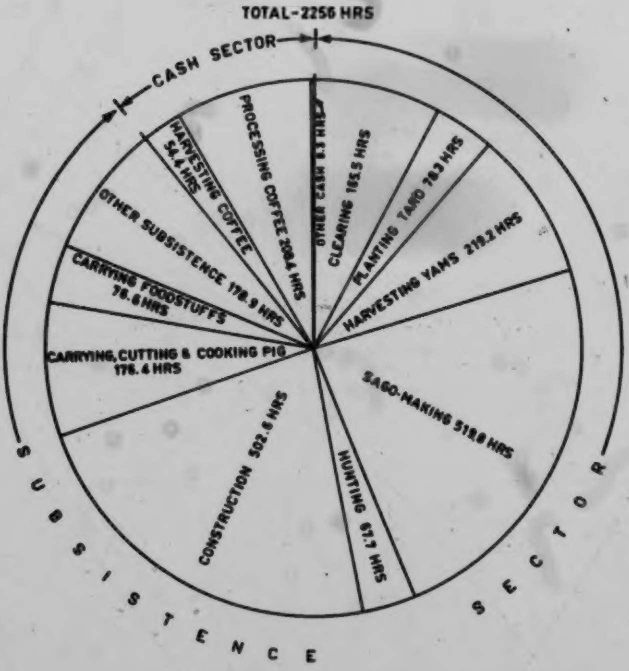
FIGURE 10:1

SIVEPE
NON-MONETARY LABOUR SERVICE TRANSACTIONS



431 no evidence that these gifts are reciprocated. Absentees continue to make them in order to protect their interests in the village against an eventual return, to acknowledge support being given to any dependents remaining behind, and to ensure their own accommodation during holidays. Villagers would like to repay such gifts with subsistence produce but, apart from one instance arranged by the researcher, are unable to do so for lack of adequate transportation.

438 with another party and the peripheral food distributions, accounted for half the total volume of transactions effected by the sample during the week and, specifically, all the pig and 48 per cent of the taro. A mourning feast within the sample and food exchange between Sivepe and another village in weeks 26 and 27 had a similar impact on the level of transactions.

(ii) Labour services (Tables 10:5 and 10:6). Labour services are largely specific to certain activities not in themselves a regular feature of the agricultural routine, and transactions assume a distinctly seasonal pattern with the mean weekly volume in period II being approximately twice that of the other periods. This increase is entirely a function of sago-making, 56 per cent of all period II transactions being associated with it. The bulk of these transactions were in fact restricted to week 17 when services rendered amounted to 16 per cent of activity time.

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Table 10:5

Sivepe: mean weekly transactions of labour services during each recording period

(hours)

Labour services		Period I	Period II	Period III
Cash sector	Acquisition	11.4	1.3	-
	Disposal	12.3	1.9	-
Subsistence sector	A	26.6	77.1	32.6
	D	24.9	66.1	33.6
Total	A	37.9	78.4	32.6
	D	37.2	68.1	33.6

Within the subsistence sector labour services in harvesting yams, carrying food and pigs, and butchering the latter also follow a seasonal pattern.[1] Yams are harvested during the wet season for consumption during the dry, while the carrying of food and pigs is associated with the ceremonial exchanges and feasting which are a feature of period III. The decreasing significance of construction through the survey was related to the formulation of plans to transfer the village to a new site rather than to seasonal considerations.

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[1] However, as noted on p.192, the circulation of pigmeat follows a periodic pattern on account of the killing of marauding pigs and the purchase of 'marketed' meat. Little assistance is required on such occasions.

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Table 10:6

Sivepe: the type and volume of labour services transacted during each recording period
(hours)

Activity	Period I hrs	I %	Period II hrs	II %	Period III hrs	III %
1. Subsistence						
Clearing	67.8	8	61.8	7	35.9	7
Taro - plant	21.8	3	39.6	5	16.9	3
maintain	-	-	16.7	2	14.8	3
harvest	10.6	1	17.2	2	-	-
Yam - harvest	128.9	15	-	-	90.3	17
Coconuts - harvest	3.9	-	17.2	2	16.4	3
Sago-making	-	-	489.2	56	30.6	6
Hunting	-	-	36.5	4	31.2	6
Construction	328.1	38	152.9	17	21.6	4
Pig-carrying, butchering, etc.	32.2	4	8.0	1	136.2	26
Food-carrying	-	-	-	-	76.6	15
Miscellaneous	2.6	-	19.5	2	57.7	11
Sub-total: subsistence	595.9	69	859.6	98	528.2	101
2. Cash						
Coffee - harvest	54.4	8	-	-	-	-
process	205.1	24	3.3	-	-	-
Rubber - market	8.0	<1	-	-	-	-
Errand-running	6.3	<1	16.0	2	-	-
Sub-total: cash	273.8	32	19.3	2	-	-
Total	869.7	101	878.9	100	528.2	101

The exchange of labour services in the cash sector is significant only during period I. Associated almost entirely with the harvesting and processing of coffee, in themselves strictly seasonal activities, they account for 32 per cent of transactions, while, as a single activity, coffee processing is exceeded only by construction in the volume of labour services utilised. On account of the urgency associated with the processing of coffee, the circumstances in which assistance is rendered are essentially the same as for subsistence activities.

432 [434] (iii) Cash crops. All sales of coffee were restricted to period II (following intensive production during the latter part of period I) when a mean weekly income of $9.72 was derived from them. Rubber sales were made in periods I and III when mean weekly returns of 33c and $1.11 respectively were obtained. In fact the pattern

437 The exchange of labour services

476 [460] Table 11:15 presents the detailed composition of labour services given and received by the Inonda people. These services have been discussed in general,[1] particularly with reference to their seasonality. It is worth emphasising here the comparatively small extent of mutual collaboration in work. With some 17,000 working hours available (on the arbitrary basis of 6 man-hours for each of the 2,782 man-days on which exchange data were collected), less than 450 hours were actually spent in assisting others, either in or outside the village, although a few more hours were spent working together in communal tasks such as building the copra drier and chapel.

[222] [462] As was pointed out, 46 per cent of the acquisitions of labour assistance in subsistence tasks is in sago-making. There are two main reasons for this. Firstly, it requires several days of intensive and exhausting labour in order to beat the starchy pith from the felled trunk before it spoils in the hot, moist climate and before wild pigs can get at the opened trunk at night. Secondly, a single tree provides enough food (supplemented by garden produce) to support several families for some weeks and the produce of a single tree is distributed by the rightholder(s) particularly to those who assist in its preparation. Due to the exhausting nature of the task, men provide the bulk of the assistance. There is no clear pattern of kinship groups operating: assistance may be requested and received from the immediate family or from among patrilateral, matrilateral and affinal kin. Assistance received in sago-making exceeds disposals by 93.4 hours, reflecting an inflow from other villages. This was received mostly from two young Seva men, who also contributed over one-third of the total assistance received in house construction.

Tasks involved in the construction of houses account for about 10 per cent of disposals and 15 per cent of acquisitions of all subsistence services. This is undoubtedly higher than it would otherwise be owing to the reconstruction of the village. Even so, the amount of assistance given in the process of re-building is probably understated, as much occurred outside the recording periods. The bulk of the construction services fell into periods I and II and the move was completed by the beginning of period III. [342] [824] One-third of the assistance in construction was in making roof-sheets from sago leaves.

About one-quarter of both acquisitions and disposals of subsistence services is in garden tasks - mainly fencing, clearing and planting taro. In most of these there is an excess of acquisitions,

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[1] See pp.235-44.

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Table 11:15

Inonda: the type and volume of labour services transacted during each recording period
(hours)

	Period I (12 weeks)	Period II (6 weeks)	Period III (8 weeks)	Total (26 weeks)
		Acquisition		
Clearing	4.0	12.5	19.8	36.3
Fencing	10.0	34.4	-	44.4
Planting	10.1	14.0	22.9	47.0
Weeding	3.0	4.2	2.2	9.4
Harvesting and collecting forest products	-	3.0	7.6	10.6
Sago-making	-	263.7	-	263.7
Hunting and butchering	35.4	2.0	7.3	44.7
Construction	17.3	72.1	3.4	92.8
Household	8.8	-	21.7	30.5
Sub-total: subsistence	88.6	405.9	84.9	579.4
Coffee cultivation	10.0	17.7	6.5	34.2
Cocoa cultivation	-	-	-	-
Marketing	0.2	6.0	1.2	7.4
Purchasing	-	-	4.2	4.2
Entrepreneurial, incl. storework	7.0	-	-	7.0
Sub-total: cash	17.2	23.7	11.9	52.8
Total	105.8	429.6	96.8	632.2
		Disposal		
Clearing	12.0	0.5	4.0	16.5
Fencing	10.0	22.4	-	32.4
Planting	8.0	4.5	18.1	30.6
Weeding	3.0	10.2	-	13.2
Harvesting and collecting forest products	-	3.0	2.5	5.5
Sago-making	-	170.3	-	170.3
Hunting and butchering	61.4	2.0	1.3	64.7
Construction	17.3	19.7	3.4	40.4
Household	4.6	-	8.6	13.2
Sub-total: subsistence	116.3	232.6	37.9	386.8
Coffee cultivation	10.0	6.5	15.2	31.7
Cocoa cultivation	11.0	-	-	11.0
Marketing	0.2	-	-	0.2
Purchasing	-	3.3	5.4	8.7
Entrepreneurial, incl. storework	1.5	-	-	1.5
Sub-total: cash	22.7	9.8	20.6	53.1
Total	139.0	242.4	58.5	439.9

Early in 1966 DASF in Popondetta, working through the OCGS, recommended the establishment of several fermentaries through the area which would purchase cherry. The object of the scheme was, firstly, to increase the cash return to the grower by eliminating time-consuming and inefficient pulping at the village level and, secondly, improve the quality of locally-produced coffee. The Orokaiva expressed their opposition to the proposal; a reaction which is readily understandable in terms of the problems inherent in marketing cherry, with its much lower value per unit weight than parchment.

Although the transport situation is largely beyond the control of the individual grower, the low level of productivity characteristic of the handling of cash crops is not entirely so. DASF at Popondetta estimate optimum yields of coffee to be of the order of 2 lbs of parchment per tree. The yields realised at Inonda during 1964 amounted to only about 0.37 lb per mature tree although those at Sivepe, where the ecological conditions are more favourable and the cash economy more dependent on coffee, exceeded 1.5 lbs. Although dissatisfaction with prices obtained early in the season frequently deters growers from harvesting all their coffee, as does the obligation to reciprocate with cash any assistance received in transporting it to the selling point, returns to labour are reduced by inefficient techniques. Fig. 13:1 indicates the typically haphazard movements of coffee pickers, where there is no systematic removal of cherries and a tree may be returned to several times in the course of a single period of harvesting. Due to a lack of pruning trees often grow 10 ft high or more, leaving many cherries out of reach. The lack of suitable receptacles in which to put the harvested product further reduces the efficiency of the picker - cooking pots and their lids are often used, leaving only one hand free for the actual picking. Even more inadequate are the techniques of hand pulping often used.

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Similar problems are associated with rubber in Sivepe, although a reasonable level of production is maintained.[1] The communal planting contains a large number of closely spaced, self-sown trees which inhibit movement. Ignorance on the part of a number of the users as to the correct method of tapping has resulted in the scarring of many of the trees and a consequent reduction in their yield. As with coffee, trees are tapped at random, while the quality of the latex produced suffers from a lack of proper equipment.

Finally, at Inonda, the first quantity of copra produced was spoiled by smoke when husks were added to the fire. Where there is a communal element, difficulty arises out of a failure to delegate

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[1] See Rimoldi 1966:93.

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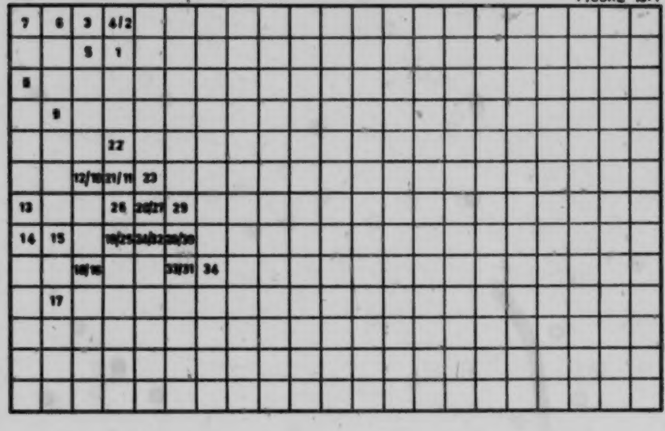
SIVEPE : THE TECHNIQUE OF HARVESTING COFFEE

THE SEQUENCE OF MOVEMENT OF ONE MAN BETWEEN TREES OVER A 1.8 HOUR PERIOD

EACH SQUARE REPRESENTS ONE TREE, THE TREES BEING SPACED AT 8 FEET INTERVALS

FIGURE 13:1



433 responsibility effectively, but, in all cases, a serious problem is lack of knowledge on the part of the cash cropper. Such recent developments as the copra scheme at Inonda and the communal garden and individual rubber plantings at Sivepe clearly reflect a continuing interest in commercial agriculture. A general failure to develop the appropriate skills would seem to be explained by the inadequacy of DASF extension patrols. Before the establishment of the Ombi Tara scheme[1] the department did not formally concern itself with village rubber, while educational patrols in connection with the other crops are infrequent, and so little time is spent in each community that the benefits accruing from instruction are slight.

Table 13:1 details some returns to labour from the production and marketing of cash crops in Sivepe and Inonda. Rubber emerges with the most favourable return, at 12c per hour, primarily on

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[1] See Morawetz 1967.

[TEXT CONTINUED ON PAGE 292]

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Table 13:1

Some returns to labour from established cash crops

Crop	Village	No. of sales	Total hours worked*	Return (in cents per hour) Range	Mean
Rubber	Sivepe	3	112.3	9-15	12
Coffee	"	5	727.4	6-13	9
Copra	Inonda	1	30.7	-	8

* Harvesting, processing and marketing.

account of the limited amount of labour-time required to coagulate rubber in the village, when compared with the preparation of parchment coffee or copra. The differences are, however, slight and the return from coffee is inflated on account of the significant labour contribution made by children in pulping being disregarded, while the figure for copra refers to an initial attempt at production and efficiency is likely to have increased subsequently. Although rubber is generally recognised to be an 'easier' crop at Sivepe, estimates of commercial trees within the sub-district do not suggest any widespread preference for it,[1] and cash crop preferences appear to be placed on considerations other than that of the return to labour.

[461] Coffee is the most widely-planted tree, partly no doubt because of encouragement by DASF, but also because it has a much higher value per unit weight than the others, being marketed for 18c per lb. Rubber, as coagulum, markets at 5c per lb and copra and cocoa at about 3c. This higher intrinsic value is extremely important in the prevailing marketing situation where cash crops must normally be carried some distance to the point of sale. Furthermore, not only does the seller of rubber or copra receive a lower gross return per man-journey (see Table 13:3), but his net return may be reduced through repayment for transporting these bulkier crops to the point of sale.

[434] [461] Cash cropping is only one of several important sources of income and, in Inonda, it is comparatively insignificant. Although it can generally be presumed that the principal reason for embarking on cash-producing activities is the acquisition of money,[2] an investigation of comparative returns to labour does not provide an entirely satisfactory explanation for the status of commercial crops.

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[1] See p.18.

[2] In the case of medical work at Sasembata mission and labouring for settlers, the acquisition of cash is certainly not the sole or even main motive. See pp.30-1, 93. A

A,[See Category 461, pp. 30-31; Category 797, p. 93--Analyst]

433 434 [461] At Inonda there is a generally expressed preference for wage employment. Compared with most other activities, returns in this are less, but a weekly income is assured. By contrast several hours may be spent in hunting or fishing and marketing with little or no return, and gambling may result in loss. Shortly after the end of the survey four men from Inonda obtained employment in Popondetta, involving a ten-mile journey to work each day. At the normal wage rate for casual labour the returns would be particularly low, while full-time employment would also make it difficult for them to maintain their food gardens. Although some men are able to call on young men from other villages to assist in garden maintenance,[1] this is not always possible and married men often need to leave their jobs to fulfil obligations in the village and embark on a period of intensive garden work.

454 Capital formation,and investment and the utility of money are matters of immediate concern to the villager who participates in the cash economy in order to raise his standard of living. Trade store stocks are restricted to cheap consumer goods which give the purchaser little lasting satisfaction. Earnings are so small that once major commitments such as council taxes are settled, what remains is often sufficient only for minor purchases. Facilities for the effective saving of cash are inadequate; people are unwilling to walk several miles to deposit small sums at a savings bank agency, and money held in the house is immediately available for casual demands. This unsatisfactory situation is an inevitable feature of a predominately subsistence economy. For this reason villagers appear to place some importance on the size of individual cash payments regardless of the labour input involved, for, the greater the sum, the greater the potential utility of the money. It is in this context that the particular significance of remittances to the Sivepe economy can be understood. All important instances of capital saving and investment in the two villages followed receipts of large sums of cash.[2]

434 The pre-eminence in Sivepe, in terms of size of cash payments, of sales of coffee, pigmeat and remittances is shown in Table 13:3. In spite of the considerable price fluctuations which may occur, coffee is the only one for which there is any degree of reliability of income. The position of pigmeat in terms of size of payment and of returns to labour explains the very considerable temptations evidenced in Sivepe to 'market', while the small payments for rubber, which are a direct function of its low value per unit weight, provide a partial explanation for the failure to develop it further as a cash crop, in spite of its relatively high returns to labour.

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[1] See Crocombe and Hogbin 1963:64.

[2] See pp.204-5 and 256.

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Table 13:3

Sivepe: mean size of individual cash acquisitions from major sources

Item	No. of occasions	Income (in $) Total	Mean
Sale of coffee	13	159.95	12.30
'Marketing' pigmeat	2	18.15	9.08
Remittances (from outside the District)	17	153.00	9.00
Sale of rubber	5	23.70	4.73
Payment for work on settlers' blocks	7	32.60	4.66

Note. The differences between Tables 13:1 and 13:3 in number of sales of coffee and rubber recorded are explicable in terms of the availability of appropriate data on labour inputs.

433 The overall pattern of involvement in the monetary economy covers a wide range of cash-producing activities but suggests only a limited commitment to cash cropping itself. Although the productivity of these crops could be readily increased the villagers do not seem greatly interested. In part they are deterred by marketing difficulties, but of equal importance is a cautiousness founded on past experience. Rimoldi (1966:101) remarks:

> The people's experience of commercial agriculture has been so confusing and the returns to be derived so problematical that we are not prepared to say that, assuming the continuation of present marketing conditions, any member of Sivepe firmly believes that cash crops would still warrant extensive investment of his time and capital.[1]

The history of cash cropping among the Orokaiva is extremely chequered and is reflected in a continuing unwillingness to be committed to it as the principal source of income. Instead, more of an opportunist approach to money is adopted, and this may involve taking work where the returns are extremely small.

461 Although Crocombe and Hogbin (1963:83) have suggested that considerable increases in agricultural output could be effected without the introduction of capital, the villagers themselves consider major investments to be an essential concomitant of such increases, if only in order to demonstrate to others the advances they have effected. Preference is therefore placed on activities characterised as much

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[1] See also Crocombe and Hogbin 1963:82.

by large cash payments as by high returns to labour and, in effect, a premium seems to be placed on money rather than time. This is understandable in the circumstances where capital saving is extremely difficult and where there is an apperent surplus of labour, since it is the simplest manner in which substantial capital investments can be made.

Work patterns

Traditionally among the Yega members of one lineage worked together to clear the forest in preparation for planting food gardens. The cleared patch was subdivided among those who helped with the work. Planting and caring for the growing crop was the responsibility of the individual and his family. This traditional pattern was modified when clearing rain forest for the Yega Scheme when the able-bodied men of all lineages worked together. The cleared blocks were then allocated by ballot and the individual concerned was responsible for planting shade trees, laying out a seed bed, planting out the young cocoa trees, 'lifting' shade as the trees increased in size, and keeping down the weed growth. In most instances, relatives who helped the blockholder with these tasks were compensated. For example, the cocoa pickings on 29 July (see Table 1) by Aubrey and John Livingstone were made from the same blocks as those by Ethelbert and Livingstone on 1 July. Aubrey is a member of the same lineage as Ethelbert and John Livingstone is a son of Livingstone. As part payment for work done previously on the blocks these two men were permitted by the blockholders to harvest one month's cocoa production. Other relatives who had helped with the work would be given a similar privilege.

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Late in 1962 and early in 1963 many Yega moved their homes to the new villages of Ononda and Binjapada (see Table 5),A the reason given in every case being to live closer to their cash-crop areas. In January 1963, however, the move had not resulted in a significant increase in the amount of time spent on the cocoa blocks.[1] This was because of the time spent building their new houses. Only one man out of 12 spent any time working on his cocoa block during the period 14-28 January. The remainder divided their time about equally between building and work in their food gardens, which were scattered between the coast and the new cocoa blocks.

166 242 245 461 464

Several attempts were made to introduce communal labour into the production of cocoa. The first was organized by a blockholder, Wilfred Upena, early in 1963. He and 17 others belonging to five different Yega clans agreed to do a day's communal work clearing rain forest to extend each man's block in turn. As the originator of the scheme, Wilfred's turn was first and an acre of rain forest was cleared on his block on the first day. But on my return a year later no further communal work had been done by the group.

242 245 464 476 [614]

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[1] An unsupervised record of daily work was kept by a man living at Ononda from 14.1.63 to 28.1.63, but it was of only limited value.

A. [For Table 5, see Category 166, p. 43--Analyst]

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[614] The second attempt at communal labour was by the men of Kurou clan, who agreed to work on specified days on the two cocoa blocks allocated to Kurou members. This scheme was initiated in mid-1963, but only two days' work was done.

The third attempt at communal labour, in July-August 1964, owed its origin to a suggestion made by the Yega councillor in the newly-formed Oro Bay Local Government Council that the Yega should perform communal work on the cocoa blocks on Tuesday each week. The work to be performed was only cutting grass and clearing additional forest, not harvesting cocoa. The first two work periods under this system were observed and the workers counted by a Papuan assistant. The results were remarkable. On both occasions over 60 adults worked for times ranging from 3 to 8½ hours, with a mean time on the two days of 6½ and 8 hours respectively. No matter what time people started work, 'knock-off' time was by whistle at 4.30 p.m.

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461 Cocoa was harvested by individuals. Details of the work times of two men harvesting cocoa for sale to the fermentary representative were observed as follows:

Ethelbert, 1.7.64 (assisted by son aged 6 and daughter aged 8)

Walk from village to cocoa block	25 minutes
Harvest 205 cocoa pods and collect in one spot	55 minutes
Remove beans from pods	50 minutes
Await arrival of fermentary vehicle, weigh produce, await payment	1 hr 35 minutes
Total	3 hrs 45 minutes

Aubrey, 29.7.64 (unassisted)

Walk from village to cocoa blocks (including visit to friend on way)	45 minutes
Harvest 103 cocoa pods	1 hr
Remove beans from pods	40 minutes
Await arrival of vehicle, weigh produce, await payment	2 hrs 10 minutes
Total	4 hrs 35 minutes

[434] The cash reward for labour performed may be seen in Table 1. Ethelbert received $1.12 while Aubrey received $0.68.

474 development of each of the small local co-operatives. These were
241 all organized along similar lines but the following description
applies specifically to the Gombe Co-operative which (to distin-
[177] guish it from Samuel Ungega's venture) was renamed the Yega
[797] Co-operative.

The executive committee of the co-operative consisted of five members: a chairman who was a well-known elder and later became the acknowledged leader of the Yega, a secretary who was a younger man of some education and in good standing with the mission authorities, and three young and energetic members, two of them ex-servicemen who had had some post-war agricultural training at
[666] Dogura. This committee was elected by a general meeting of Yega people. Its function was to decide which land to use, when to
[857] change areas of cultivation and when to work: co-operative work days were Tuesdays and Saturdays when all people (even school children on Saturdays) were supposed to work on the co-operative gardens. At certain times,such as harvesting,extra work was necessary. The committee made the decision when to call for such extra efforts. In addition, the committee appointed people to other set duties and supervised the performance of these duties. Such positions were:

i. jobmaster, who allocated work;

[451] ii. farm leaders, who kept farm records,[1] supervised sowing, harvesting and other technical aspects - these men had all had some agricultural training;

[409] iii. huller operator. A rice huller was acquired and installed at the western end of Beporo village;

[461] iv. toolkeepers and timekeepers. They kept tools in good repair, and rang the bell at 8 a.m. for staring work, at mid-day for prayers and at 5 p.m. for knocking off and prayers. Although people then lived in villages stretching along about three miles of coast-line, and the only bell was in Beporo village, it was stated that in the early days of co-operative work most people were punctual; after the first year there was a gradual slackening in enthusiasm.

[451] The secretary kept a roll book in which the names of all workers were entered. Each work day he walked round the gardens and ticked off the names of those present. There was no attempt to discriminate between hard workers and slackers. The person who worked for one hour received the same credit for attendance as one who

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[1] Unfortunately no written records of the co-operative were located.

125 period of up to twelve months.

Data were collected daily on the work undertaken by each villager of fifteen years of age and over. Details of the work proposed for each day were noted each morning, and usually verified in the evening. However, as the people do not have clocks and we were unable to make detailed checks throughout the day, the number of hours recorded for each task can only be taken as approximate.

512 It is much easier to summarize and compare the
461 hours spent in various activities if we have a standard yardstick of a day's work. Plantation labourers work an eight-hour day, but we are reluctant to use this as a basis for comparison with village folk. On the other hand, a simple total of hours spent in each task can also be misleading: for example, the councillor on one occasion spent seventeen hours on council work (including travelling time) in one day. Merely added into a list of hours this would suggest that more than two full days were spent on this duty, though this was not in fact the case. Likewise we have found it difficult to account for days spent in mourning, travelling or celebrating in such a way that total time can be effectively compared. From a preliminary analysis of days which were not marred by mourning, celebrating or sickness, we found that people were occupied in activities other than domestic and leisure for about seven hours daily. Therefore when a day is taken up with sickness, mourning, travelling or other non-productive occupations, we have recorded it for comparative purposes as seven hours.

It will be seen from Table 11 that on the average each man spent 14.0 hours a week on subsistence activities (including hunting etc.) and each woman 15.1 hours. If the time spent in cash cropping is added to this the average becomes 14.7 hours for men and 16.0 hours for women.

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Table 11

Time patterns

	Average hours per week (6 weeks)		
	Men	Women	Both sexes
Traditional production			
Subsistence	9.6	13.9	11.7
Hunting, fishing and foraging	4.3	1.2	2.8
Building	0.1	-	0.1
	14.0	15.1	14.6
Production for cash			
Paid work	11.3	-	5.7
Cash cropping	0.7	0.9	0.8
	12.0	0.9	6.5
Non-economic activity (other than domestic and leisure)			
Social obligations	12.5	20.0	16.2
Travel	2.8	3.1	2.9
Sickness	2.6	3.2	2.9
Council	0.6	0.1	0.3
	18.5	26.4	22.3
Total	44.5	42.4	43.4

464 When wage labour is available locally it is keenly
sought after by the villagers. Two men had regular work for the
Public Works Department. In addition some casual work was
available at various times during the year on a local construction
job. All the able-bodied men under about forty years of age
offered themselves for work at such times but there was not
512 always sufficient work for all to be employed. Table 12 shows
461 that those men who were engaged in paid work for 40 or more
hours per week still spent an average of 6.0 hours on subsistence
activities (this is just under half that for all men in the village).
They spent much less time on social obligations and travel, and
had much less leisure time. This is illustrated in more detail
in Diagram 1.(1) Owing to the absence of the paid workers during the day their wives had to undertake more work in the gardens, though in many cases a young male relative of the wife came to help her from time to time.

Table 12

Subsistence work done by men who were also engaged in full-time paid work

	Men in paid work	Total hours work on subsistence	Average hours per man
1st week	5	61	12.2
2nd "	5	nil (feast)	0.0
3rd "	No man had a full week's work this week		
4th "	1	nil	0.0
5th "	1	6	6.0
6th "	1	11	11.0
	13	78	6.0

Note: One man was omitted from the table as, though he was paid full time, he did not have to work full time and was able to do his subsistence work in his employer's time.

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(1) It should be noted, however, that those who were accepted for employment were the younger, more energetic men who would probably have done more work than the average in any case.

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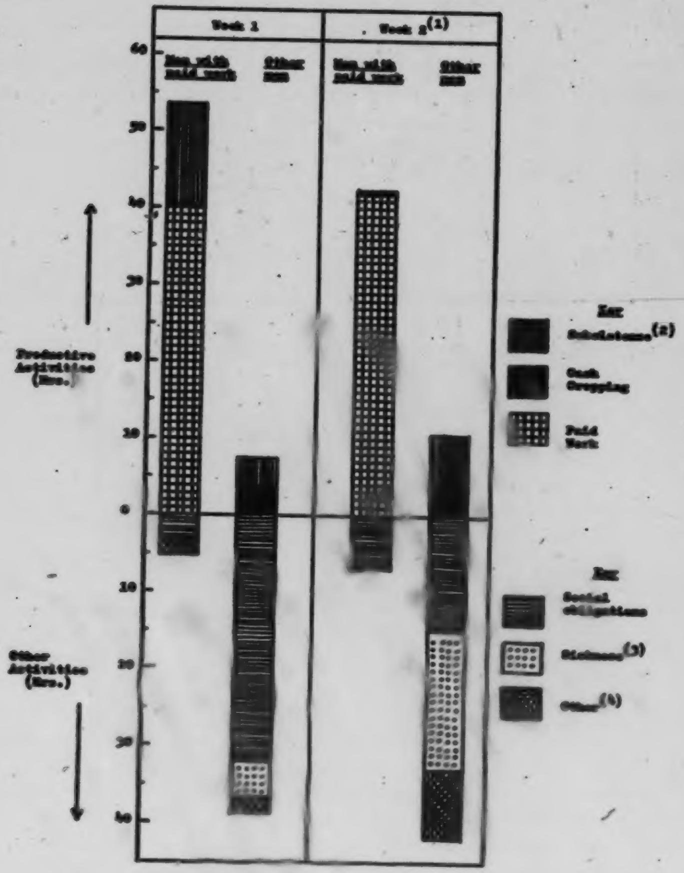
Diagram 1

Activities of wage earners compared with those of other persons.

[In average hours per person per week]



(1) This chart is only drawn out for the two weeks as thereafter there was not more than one man fully employed (see Table 12)
(2) Including hunting, fishing, foraging and building
(3) Including caring for the sick
(4) Including travel, council work etc.

[p 65]

512 Owing to their employment, the paid workers were
461 able to spend less time on food production, and the average area
of food garden was less (per consumption unit)(1) in households
241 where the adult males had paid employment than in those where
they did not. The three households wherein the only man had paid work had an average of 0.72 acres under cultivation per consumption unit, the two households wherein the only man did not have paid work had an average of 1.66 acres under cultivation per consumption unit, and the three households containing two men (in each case one working and one not) had an average of 0.79 acres per consumption unit.(2) Food intake was maintained partly by the purchase of store foods, particularly rice. Moreover, the wives of paid workers spent more time than usual in subsistence production, and concentrated more than the wives of other men on harvesting for current use more than
[464] cultivation for future use. Planting is not maintained at the
normal level when paid work is available, but as the work is casual this has no serious effects (for extra cultivation is done
[465] when paid work is no longer available). The present pay-rate
of £1.10.0 for a 40 hour week is not sufficient to feed a family from store foods alone, so that continuous work at these rates would probably result in a decline in living standards.(3)

512 Men who are engaged in paid work still engage to
461 some extent in other types of productive work. The main substitution is not paid work for other productive work, but paid work for non-productive occupations. This is illustrated by Diagram 2 which compares the activities of paid workers with those of all men for the whole period.

The amount of time spent on social obligations is probably somewhat higher than usual owing to the death men-

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[125] (1) Any person 10 years of age or over was rated as one consumption unit, children 4 - 9 as half, and infants 0 - 4 as one quarter. Temporary visitors were excluded.

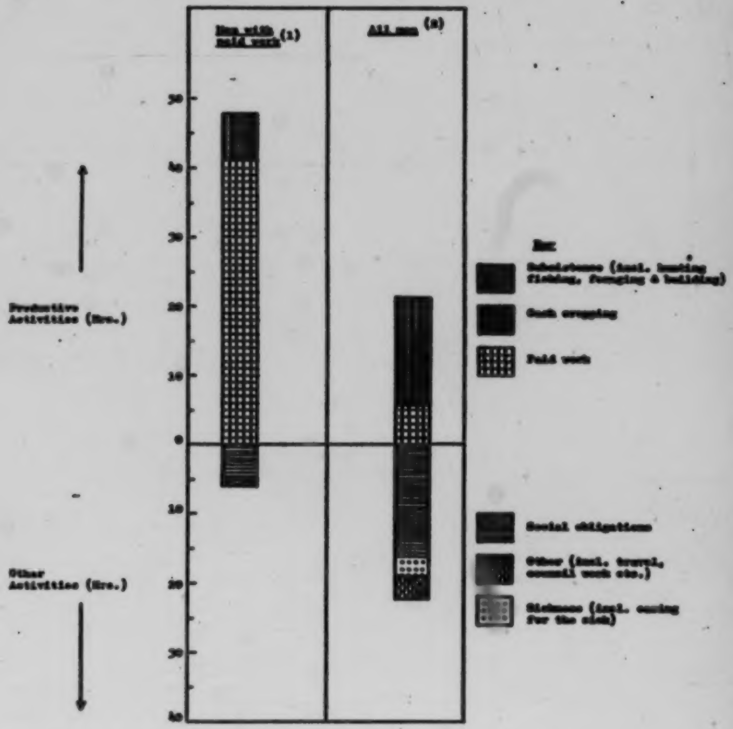
(2) The average for the households with two adults was reduced by the fact that in two cases the men remaining at home were either ageing or suffering from long-term illness.

(3) The most reliable indicator of nutritional requirements is the rations scale in the Native Labour Ordinance 1958. This ordinance prescribes minimum quantities of foodstuffs required for indigenous workers and their dependents. The retail cost of the supplies listed is approximately £1.3.0 per week for a single man or £2.19.0 for husband, wife and three children. These prices are for food only.

[TEXT CONTINUED ON PAGE 68]

Diagram 2

Activities of men in paid work compared with those of all men in the village (in average hours per man per week).



(1) For first 2 weeks of the survey (see Table 12).
(2) All men for the full 6 week survey period.

[p. 67]

tioned, but it does indicate the effects of life crises on productivity. Table 13 shows the hours spent on various subsistence tasks during a "normal" week when there was no mourning or feasting as against the average of those weeks when there was mourning or feasting. It will be seen that approximately the same amount of time is spent on subsistence activities as a whole, but whereas in the "normal" period most of this time is spent on cultivation, during life crisis most of this time is spent harvesting accumulated reserves of food. It will also be noted that during times of crisis the work of women increases, as they do most of the food preparation, whereas the work of men decreases.

Table 13

Hours spent per person in subsistence activities in a "normal" week compared with weeks of mourning or feasting

	One "normal" week (no mourning or feasting)(1)			Weekly average of five weeks with mourning or feasting		
	Males	Females	Both sexes	Males	Females	Both sexes
Cultivation:						
Planting	5.6	1.9	3.8	1.7	0.9	1.3
Clearing	1.6	-	0.8	1.2	0.6	0.9
Fencing	3.8	3.6	3.7	0.7	-	0.3
Weeding	-	0.8	0.4	0.1	2.4	1.3
	11.0	6.3	8.7	3.7	3.9	3.8
Extraction:						
Harvesting	0.3	4.4	2.4	1.9	8.7	5.3
Sago-making	-	-	-	3.7	2.0	2.9
	0.3	4.4	2.4	5.6	10.7	8.2
Total:						
All subsistence activities	11.3	10.7	11.1	9.3	14.6	12.0

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(1) This was the last week of our survey. The women of the deceased's family still spent some time in mourning, but the rest of the village resumed normal work.

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The following rough assessment of total days expended on various tasks per year has been made.

Subsistence	Assessed man-days per year (adults only)		
	Men	Women	Average
Bush clearing: 1.1 acres per adult male. We assume that men take about 10 man-days to clear an acre, and are assisted by their womenfolk during 4 man-days.	10	4	7
Planting: 0.5 acres per adult per year shared roughly equally by men and women assuming 8 man-days per acre of planting.	4	4	4
Weeding, maintenance and harvesting: 25% above pilot survey for although during that time harvesting was increased, weeding was reduced due to funerary commitments.	19	109	64
[417] **Fencing**: One household of 6 adults (incl. 2 visitors) and 2 children erected 239 ft. of fence in 6 hours. Another household of 3 adults built 145 ft. in 8½ hours. This suggests that an adult, as a member of a team, can construct approx. 50 ft. of fence per day. There is a total of 7,148 ft. of intact pig-fence around the food gardens which was constructed during the 12 months preceding our survey. On the average therefore each household makes about 900 ft. of fence per year, which would require approximately 18 man-days per household, or about 7 days work per adult per year.(1)	7	7	7

(1) Wild pigs are most prevalent in the areas which border the Hydrographers Range. In the central parts of the Orokaiva country there are few wild pigs and the people do not build fences. This saves them time but, on the other hand, they cannot supplement their diet with fresh meat to the extent that the "border" people can.

14: Crocombe & Hogbin E-5 (no date) 1963 OJ23 Orokaiva OJ23
Inonda

● 461	Men	Women	Average
221 462 [224] [226] [222] **Hunting, fishing and foraging**: Taken as 25% below pilot survey (as hunting increased during mourning and fishing increased during dry deason; foraging not fully accounted for as often done in the course of other activities). Hunting all by men, fishing mostly by men, foraging mostly by women	30	8	19
[342] **Housebuilding**: House rebuilt about every 4 years. Assuming that it takes about 16 man-days to build a house.	4	-	2
Total subsistence activities:	74	132	103
[240] **Cash cropping**: Assessed time needed to maintain and harvest area planted (1.85 acres) averaged over all adults.	6	6	6
Council work: Road work say 4 days per man per year.	4	-	2
Church: Services 2 hours per week, plus church celebrations 2 days per year.	17	17	17
Sickness (including caring for the sick): Based on survey period.	23	29	26
Paid work: Based on actual paid work undertaken so far this year.	72	-	36
Total other activities:	122	52	87
Social obligations			
Death: Based on 2 deaths per year in this village, each involving the equivalent of 10 days absence from productive activities; and 5 deaths elsewhere which concern Inonda people involving 3 days each.	35	35	35

	Men	Women	Average
● 461 221 462 Marriage: Based on one marriage in the village or elsewhere involving 3 days each.	3	3	3
[484] Travel: (Mostly to visit relatives in relation to life crises). Based on survey period.	25	27	26
Other: Christenings, feasts, mothers' clubs, school openings, etc.	18	18	18
Total social obligations: (This is 40% less than the survey period).	81	83	82
Summary			
Subsistence activities	74	132	103
Cash cropping	6	6	6
Paid work	72	-	36
	152	138	145
Council work, church activities, sickness etc.	44	46	45
Social obligations	81	83	82
	277	267	272
Days remaining per year	88	98	93

No account has been taken of time spent in leisure or housekeeping activities.

423 necessary for the normal growth of the tree or trees concerned.

[245] In contrast to the random pattern of planting of traditional tree crops, coffee and cocoa must be planted contiguously and in relatively large numbers. It is not normally feasible for the land to be used for any other purpose at the same time, and it is therefore desirable that the planter have effective control of the land. Clear identification of rights is particularly necessary because of the value of the crop. It may also be desirable in giving the individual a degree of freedom from his descent group, for as more facilities are provided by larger institutions (local and central government agencies, missions etc.) the need for co-ordinated action by the descent group diminishes and it may even function more to limit the aspirations of members than to supply their needs.

There would not seem to be any advantage in defin-
ing or registering lineage boundaries, or the food gardening
[241] areas of individuals. People frequently plant food crops on the
[613] land of other lineages and this does not seem to cause any acute
problems. It is a matter of convenience, done at the invitation
of the rightholding lineage, and it results in a reduction of bush
425 clearing and pig-fencing. Furthermore, there are accepted
processes of transfer of proprietary rights from one lineage to another and we recorded several such instances. The transfer is seldom completed in a single transaction, but rather takes place over time, and the nature of the rights transferred is modified by occupation and other circumstances. Even if short-term cash crops (such as peanuts or rice) were introduced, it is unlikely that major tenure problems would result unless cropping were undertaken on a large scale.

Aspects of work organization which inhibit productivity

461 There is at present a considerable surplus of working time available over and above that required for subsistence and cash cropping. Table 11 (page 63) shows that the average time spent per week on subsistence activities and cash cropping was 14.7 hours for men and 16.0 hours for women. This suggests that E.K. Fisk's comments to the effect that the unexploited labour supply of South-East Asia is one of its major sources of productivity may equally apply here.(1)

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(1) Fisk, 1961:778.

461 There is a clear hierarchy of priorities among the various activities with which the Inonda people can occupy their time. Serious illness, of course, precludes any other activity. Unless suffering from illness the men give priority to wage labour (in most instances this was heavy manual work). In the absence of paid work, social obligations connected with life crises take precedence over all other activities (except the harvesting of food). During our survey, men spent an average of 15.3 hours weekly on social obligations associated with life crises, and on travel (which is generally related to social obligations) and women 23.0 hours. During events associated with life crises people do undertake subsistence activities, but almost exclusively harvesting and hunting to provide food for the festivities.(1) If there are no life crises in the offing then priority is given to clearing, planting and weeding the gardens in order to ensure the food supply. Thereafter, free time may be used for cash cropping, the making of artifacts, or leisure.

The effect of life crises on cash cropping was markedly different from that on paid labour. During the survey, villagers who were not engaged in paid labour spent a considerable amount of time preparing for a puberty ceremony and a birthday feast and did not work on their cash crops during the [765] periods of preparation. When a villager died, for the three weeks of mourning following his death, nobody worked on cash crops as this would have been contrary to accepted codes of respect for the dead. Those who were engaged in wage labour, on the other hand, did not take any time off to prepare for either the birthday feast or the puberty ceremony, though they did assist in their off hours. When the death occurred, the employees, including a son of the deceased, took only two days off before resuming their jobs. The cultural restrictions on productive activity during a period of mourning, and the obligation to give priority to feast preparations over economic pursuits,

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[583] (1) An interesting instance of the adaptation of traditional obligations to serve modern economic ends was noticed during our stay. It is common for a prospective groom to assist his prospective father-in-law with housebuilding or bush-clearing. One ex-Inonda man who had taken a block in the government resettlement scheme got his prospective son-in-law (who lived in Inonda) to work in his (the father-in-law's) coffee garden. As the son-in-law was socially of lower standing than the bride and as he was more anxious about the match than she, the father-in-law was able to derive several weeks free labour from both the groom and his sister, with occasional help from their mother and other relatives.

461 apply only to activities which are traditional or local. They do not apply with the same intensity to wage labour outside the village.(1) If major increases in cash cropping were to eventuate the amount of time now spent in festivities would need to be reduced or, alternatively, bought foods would need to be substituted for garden crops at feast times.

Other limiting factors

241 Income: Past experience has made people cautious about the prospects for their present cash crops. They are aware of the failure of the attempt to establish oil palms as a cash crop in the 1920's, of the abortive sugar project of the early 1930's, of the compulsory planting of coffee in the same decade and the subsequent collapse of the coffee market with the outbreak of war, and of the introduction and failure of rice cultivation in 1948-49. Some are aware too of the collapse of the peanut market within two years of the introduction of peanuts as a plantation crop in 1957. It was not, however, tried as a village crop on any significant scale. Though the people are not aware of the precarious state of the world market for coffee and cocoa today, they are aware of the price decreases over recent years.

245 434 Income from cash crops is not only uncertain, it is quite small and the people derive much less income from their coffee than they expected. This is due in part to unrealistic expectations, but also to decreases in price between the time of planting and the present,(2) and to inadequate knowledge of coffee husbandry. In the village context it is unlikely that the average man could, after meeting his family's subsistence needs and social commitments, clear and maintain more than two and a

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[796 178] (1) We are nevertheless informed by many Orokaiva people that the number and duration of traditional ceremonies and the number of people participating in them have all decreased markedly during recent years. They have been replaced to some extent by church festivals and sports but these activities are said to take much less time. This view is confirmed by comparing the social activities of today with those described by Williams, 1928 and 1930. The period of mourning after death has in particular been reduced and now involves fewer people.

[435] (2) The cash price per pound paid to the grower was 2/- in 1959, 1/6 in the early part of 1960 and 1/2 in the later part, and 1/- in 1961-2. The price at present being paid is 11½d. per lb.

245 half acres of coffee or cocoa. This would yield no income for
434 the first four years and a maximum of £100 per year thereafter
at current prices. This assumes an absence of land problems
and crop disease. Even so, the prospect must be heavily dis-
[464] counted because of its uncertainty. Wage labour is now available
to a limited extent at a rate of £150 per year in town areas and
[465] about £75 per year in rural areas.(1) At the time the coffee
was planted, paid employment was scarcer and wages much
lower.

471 Capital: Almost no capital is used in primary pro-
duction in Inonda. The few tools needed for small scale produc-
245 tion are easily acquired from current income, the land is not an
[654] item involving monetary cost, coffee seeds are available from
neighbouring gardens and cocoa pods are supplied by the De-
[494] partment of Agriculture at nominal cost. One man in a neigh-
bouring village has a coffee huller in which the Inonda people
have small shares, but as the Orokaiva Coffee Growers Society
(to which the Inonda growers belong) provides for all other processing, there is no need for any other equipment in the villages. Although the introduction of capital may increase output, considerable increases in output are possible without it, and capital cannot be regarded as a serious limiting factor in Inonda cash cropping at this stage.

164 Health: During the period of the survey about 7% of
461 time was accounted for by sickness and caring for the sick, but
details of sickness were not recorded for those who were in
mourning in their houses. The total for the period is estimated at 10% of all time accounted for. From superficial enquiries malaria seems to be the main cause of illness but other common ailments seen during our stay were filariasis, gastro-enteritis and influenza. The suitability of the diet for sustained hard work is not known, though it was noticed that men seldom work two days in succession on heavy labour like bush clearing (though they performed regular heavy work for wages). On several occasions when the nights were particularly cold the people got up shortly after midnight and sat around fires for the rest of the night to

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[466] (1) Indentured labour is paid less, but relatively few Orokaiva are prepared to accept
indenture. Direct comparison of gross incomes from cash cropping as against urban
[511] employment ignores the fact that food and housing costs are much higher in towns.

164 461 keep warm. As a consequence they slept much of the day following.

177 245 Non-traditional experience: Table 14 below shows that there is a correlation between non-traditional experience (in terms of years of paid work and education), and the planting of cash crops. Table 15 shows that there is likewise a correlation between years spent outside the village and the planting of cash crops. Absence from the village is generally but not invariably associated with work or schooling. The data presented in the tables suggest that an increase in non-traditional experience is associated with increased interest in cash cropping.

Table 14

Comparison of non-traditional experience (in terms of paid work and schooling) with planting of cash crops

Total years in paid work or school	Number of Coffee or Cocoa Trees	Code No. of Household Head
45	see note (a)	8
17	335	1
16	288	4
11	150	7
10	0	6
8	178	3
4	0	5
0	0	2

(a) This man is a stranger in the village, but he is currently planting extensive cocoa gardens in his village of origin.

Work patterns

472 Records of time spent in various tasks was kept by A for ten
461 weeks, and by B and C for twenty weeks.[1] The results are summarised
in Table 6. Records were also maintained for their families and
these plus those for the entrepreneurs themselves are summarised
in Table 7.

472 These tables show some marked differences between the work
461 patterns of the entrepreneurs and those of villagers. The entrepreneurs
184 spend less time on subsistence gardening than the villagers
spend (5.7 as against 11.5 hours respectively), much less time in
wage employment than villagers (nil as against 6.9), more than
twenty times more in cash-cropping and trading (19.5 compared with
0.7), only a fraction of the time acquitting traditional social
obligations (1.0 as against 8.7) but considerably more in community
activities as officers of co-operatives, local government, church
bodies and other public agencies (7.6 as against 0.5). The same
trends are apparent, though not so marked in degree, where the
entrepreneurs' families are included (Table 7).

472 Time spent on social obligations is kept to a bare minimum.
This is facilitated to some extent by the fact that all the
461 entrepreneurs live out of sight of the village houses. Non-
[361] conformity would be more difficult if they were living right in
the village. During the twenty weeks' survey of B's family, for
example, they took only one day off for each of two deaths in the
village. Had they lived in the village they would have been involved
for many days. In another instance which occurred before
472 this study began, a classificatory brother of B's wife died in
461 Inonda, just over the river from where he was living on his coffee
block. After two days' brief formal participation in the mourning
765 he removed to his Hohota house and worked on his cocoa there. Two
days after the three weeks' mourning period at Inonda finished he
returned to live at the coffee block. Had he remained at the coffee
block during the mourning he could hardly have continued to work
[184] full-time on his cash crops. The Inonda villagers, by contrast,
left cash-cropping entirely during this period.

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472 [1] The periods recorded were: A and his family ten weeks from
461 14 June to 23 August 1963; for B, twenty weeks from 1 September
1962 to 18 January 1963 and for C, five and a half weeks from
126 22 December 1965 to 29 January 1966. No records were made of D's
114 work patterns. Watches and forms for recording work patterns were
issued to A's eldest son, B's son and to C. For the first week
[101] either the writer, Mr Hogbin or Mr Burau lived with the people
maintaining the records, but the period of our residence is not
included above. One of us or Mr Eupu made visits to collect the
records and discuss problems every few days.

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Table 6

Average hours spent per week in various tasks - men only
(not including domestic and leisure)

	Entrepreneurs				Villagers		
	A	B	C	Average	Inonda*	Sivepe**	Average
Traditional production							
Subsistence	2.8	7.3	7.0	5.7	9.6	13.5	11.5
Hunting, fishing, foraging	0.3	4.7	3.1	2.7	4.3	1.3	2.8
Building	-	1.2	4.0***	1.7	0.1	2.7	1.4
	3.1	13.2	14.1	10.1	14.0	17.5	15.7
Production for cash							
Paid work	-	-	-	-	11.3	2.6	6.9
Cash-cropping and store	25.1	19.3	14.0	19.5	0.7	0.8	0.7
	25.1	19.3	14.0	19.5	12.0	3.4	7.7
Non-economic activity (other than domestic and leisure)							
Social obligations	0.3	0.7	2.0	1.0	12.5	4.9	8.7
Travel	-	3.7	1.0	1.6	2.8	4.1	3.4
Sickness	1.7	1.4	5.0	2.7	2.6	1.0	1.8
Council, etc.	0.5	10.7	-	3.7	) 0.6	0.4	0.5
Church	-	3.2	8.5	3.9	)		
	2.5	19.7	16.5	12.9	18.5	10.4	14.4
Total	30.7	52.2	44.6	42.5	44.5	31.3	37.9

* From Crocombe and Hogbin 1963b:63.
** From Rimoldi 1966:28.
*** C built a new house during this period.

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Table 7

Average hours spent per week in various tasks - all adults
(not including domestic and leisure)

	Entrepreneurs and families*				Villagers		
	A	B	C	Average	Inonda	Sivepe	Average
Traditional production							
Subsistence**	9.0	13.0	8.3	10.1	11.7	14.4	13.1
Hunting, fishing, foraging	1.6	5.0	1.6	2.7	2.8	1.2	2.0
Building	0.4	0.9	1.3	0.9	0.1	1.6	0.8
	11.0	18.9	11.2	13.7	14.6	17.2	15.9
Production for cash							
Paid work	-	-	3.6	1.2	5.7	1.3	3.5
Cash-cropping	9.7	21.9	4.5	12.0	0.8	0.5	0.6
	9.7	21.9	8.1	13.2	6.5	1.8	4.1
Non-economic activity (other than domestic and leisure)							
Social obligations	2.6	0.7	1.0	1.4	16.2	4.4	10.3
Travel	0.7	3.3	0.3	1.4	2.9	3.3	3.1
Sickness	4.0	1.1	2.8	2.6	2.9	2.5	2.7
Council work, etc.	1.4	4.1	-	1.9	0.3	0.9	0.6
Church	3.2	3.0	3.6	3.3			
	11.9	12.2	7.7	10.6	22.3	11.1	16.7
Total	32.6	53.0	27.0	37.5	43.4	30.1	36.7

* For A this included his two resident sons and their wives, two brothers and their wives. For B it included his wife and his brother and for C his wife and his adolescent daughter.

** B and his family averaged 17 hours weekly on food gardening, but 4 hours of this has been transferred to cash-cropping as he markets surplus vegetables in Popondetta. Most of the food gardening is done by his wife (26.8 hours weekly) and brother (16.9 hours).

472 It is thus understandable that though the entrepreneurs are
554 often not acceptable in leadership roles in their own villages,
they are acceptable in elective roles where the selection lies
156 with a wider community. It is likely that the stimulus they give
to economic change among the Orokaiva is considerable. When they
achieve their goal of owning motor transport, which gives tremendous
prestige, many will consider that their 'way' has been substantiated
and the impact of their example will be multiplied.

Summary

472 Data are presented on the four rural entrepreneurs among the
156 Orokaiva. Because the sample is so small few generalisations can
be made. All had travelled much more widely than the average
villager, had been in paid employment for longer and had held posts
of greater skill and responsibility than the average villager.
Whereas most Orokaiva people established their gardens on their
traditional lands, the entrepreneurs have deliberately not done
so. The three who had developed their enterprises without financial
help were all eldest sons who benefited from the labour of junior
relatives. All have attempted to employ permanent labour, but none
has succeeded.

472 There were marked differences between the work patterns of the
entrepreneurs and those of villagers. The entrepreneurs spent less
156 time than villagers did on subsistence gardening, but twenty times
more in cash-cropping and trading; they spent much less time on
461 traditional social obligations and much more on community leadership.

Bibliography

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Crocombe, R.G., 1964. 'Communal Cash Cropping among the Orokaiva', New Guinea Research Unit Bulletin, No.4.

Crocombe, R.G. and Hogbin, G.R., 1963a. 'The Erap Mechanical Farming Project', New Guinea Research Unit Bulletin, No.1.

-- 1963b. 'Land, Work and Productivity at Inonda', New Guinea Research Unit Bulletin, No.2.

Kearney, G.E., 1966. 'Cognitive Capacity among the Orokaiva', New Guinea Research Bulletin, No.13.

Rimoldi, M., 1966. 'Land Tenure and Land Use among the Mount Lamington Orokaiva', New Guinea Research Bulletin, No.11.

657 the Yoga tenure conversion scheme. An influential minority (18 per
423 cent), which included Charles, both clan leaders and the custodian
of the savings account, said that they had first heard of blocks
177 through the Sangara ex-servicemen's resettlement (not conversion)
scheme which is about twenty miles from Ombi.

Many of the Ombi-Tara people had at some time worked at Sangara clearing bush, planting seedlings or tapping rubber trees. Six of the seven men who said they had first heard of individual blocks from Sangara had worked there as had ten of the fifteen men who mentioned Sangara in answer to the more specific question 'have you heard of any other scheme where there are individual blocks?' (Nine people mentioned Yoga in response to this question.)

Moreover, the European ex-servicemen at Sangara live a life
[185] which many Ombi-Tara people find attractive. Several people sug-
[461] gested that they would like to employ labourers and work less hard
themselves, 'like the Europeans at Sangara'.

Four people reported that Administration and/or mission personnel had warned them that if they did not use their land 'properly', people from other places might come and take it. Russia, Japan, Indonesia and Hanuabada were the places mentioned. I am unable to determine how much weight the Ombi-Tara people placed on this factor in their decision to implement tenure conversion.

After two or three successful conversion schemes were introduced, the demand for tenure conversion spread rapidly throughout the Northern District. In February 1966 the District Commissioner wrote (Williams 1966:5): 'Far from having to sell the idea we have been somewhat embarrassed by the number of requests which have been received.'[1]

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[1] Similar experience has been reported from Kenya (see Healy 1961:77).

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Fig. 7. *The New Guinea gardener's work tools, an axe, and large bush knife. The strong heavy spear is carried just in case he should see a wild pig. The cigarette, rolled with newspaper, is almost indispensable to most New Guineans* [276)

trunk of the sago palm which grows in wet or 222
swampy ground. The sago is extracted by first 252
cutting down the palm, then pounding up
the fibre and washing out the starch. This
passes through a coconut fibre screen into a
settling tank. Four people can make 100 [461)
pounds of sago a day.

e) *Grass fires.* The origin and extension of 372
tropical grasslands has long been a matter of debate. Large areas of grassland occur in Yega territory where villagers regard them as practically useless. Grasslands are extended by fire but only in special circumstances. Grassland fires seldom penetrate or destroy an area of mature rain forest or even areas of well-developed secondary growth. The danger period is the first two years after a swidden is abandoned. At this time there is a large quantity of grass and undergrowth amongst the young trees. If a fire spreads from adjacent grasslands to this highly inflammable material the young trees are destroyed. Being immature, they have not yet seeded and further forest regrowth is prevented. This circumstance is most likely to occur on the south-west margins of grassland areas where strong north-easterly

[P.10-A)

353 *tapa* cloths, also worn on ceremonial occasions;
[415] often nowadays mother's best dress and
father's best shorts and shirt are also kept in
this box. Everyday tools—fishing spears, pig
spear, bush knife, and axe—are stored between
the floor joists under the floor platform. A
[372] bundle of dry firewood may be stored under
the house in case of a prolonged spell of wet
[227] weather. The dwelling of each clan fishing-leader
is easily recognized by the large seine
net hung to dry under the eaves or rolled in a
corner of the verandah.

342 The Yega build one other form of dwelling,
a garden shelter (*dobo*) usually roughly constructed
with leaf walls, frequently open at
one end and often so low from floor to roof
that a person cannot stand erect in it. A *dobo*
is a temporary dwelling, built near the swidden
in current use, and used by a man and his
family for up to a week at a time while they
are working in their gardens, which may be
three or four miles from the village. The *dobo*
is also used to shelter from rain or to take a
siesta during shorter, one-day visits to the
garden.

343 A *gaga* is simply a talking platform where
men sit for a chat, a chew (of betelnut) or a
[461] smoke during siesta time, or after the day's
work is done. There is usually at least one
[614] *gaga* for each clan in a village. The *gaga* performs
an important social function for it is
[627] here that quarrels are settled, marriages arranged,
[584] and the everyday problems and business
of the village discussed and finalised.

291 Everyday clothing is a pair of shorts and
maybe a shirt or a singlet for boys and men,
and a cotton dress or skirt for girls and women.
[287] The traditional body covering for both men
and women was beaten out bark-cloth of the
paper mulberry tree. This is used throughout
[171] the Pacific and is known as *tapa*. *Tapa* skirts
and loin cloths are still worn on special occasions,
such as weddings and New Year singsings,
while many older people wear *tapa* to
323 church on Sundays. The Yega and their neighbours
[287] are expert tapa-makers but they did not
have either the suitable clay or the art of pot-making.
439 They used to trade their *tapa* for pots
from Ambasi, thirty miles to the north, and
[178] from Wanigela, 100 miles to the south. This
trade has now declined because everybody can

[P-11-A] [TEXT CONTINUED ON PAGE 12-A]

731 remember the dead in such ways. In the meantime one may hear the drums beating
765 in some villages as the men spontaneously come together for recreation and practice.

The programme of reconstruction, then, is very much a matter of the allocation
731 of time between such ends. To regard it simply as a matter of building houses and
making gardens would be a mistake. But even within that simple framework the
311 rate of reconstruction is dependant upon the availability of resources and the
organization of work. It was estimated that the re-established population would
have about five acres of land per head outside the danger perimeter—over 100 to the
square mile. This is small compared with other areas of Papua, but it is held to be
sufficient to maintain present standards of shifting cultivation. The forest building
resources, with the possible exception of grass and sago thatch, appear to be adequate
for immediate purposes, and it is hoped that thatch can be imported from near by
areas. But there are indications, as we shall see, that agricultural requirements
may alter; and it is not certain what effect this dense population will have on
permanent timber resources. As against this, the people are permitted to extend
gardens into the danger perimeter provided they do not stay there overnight.
Unfortunately the immediate benefits of this are reduced by the fact that taro and
other gardens are choked by weeds and the roots have in many cases rotted. It
will take time to build up a stock of reliable seed and to turn this into good crops.

731 Papuans, and particularly the Orokaiva, work with great vim and energy when
they can work as a team, within sight and sound of each other. The melodious
461 song that rose as village groups combined to fell the forest on their new sites was
exciting, and as the song died away the rhythm of the work continued, this time
accompanied by back-chat and joking. All reconstruction work cannot take place
with such groups—timber and cane materials, for instance, are gathered by people
working apart from each other. But attempts were made to increase the frequency
of directly co-operative work by a typical modern Papuan device, the allocation of
work days by village constables and councillors, acting after a village meeting.
[657] The custom of Government Day, the day a week which is set aside for village hygiene
and improvement, is universal in Papua. To this has been added, in some cases, a
[797] Mission Day, set aside for work in support of Missions. From this it is an easy
step to allocate work for the week in such a way that most villagers will be doing the
same type of job on the same day, and hence the possibilities of co-operation are
increased. In most of the reconstruction villages Monday and Wednesday were set
aside for house building, Tuesday and Thursday for garden work, Friday for hygiene
and road construction (the latter a most important activity in the area at the present
time), and Saturday free or for Mission work. This calendar was somewhat
complicated by the rather inopportune demand of the Mission for a tithe of labour to
expand Mission stations in the area, a task that could well wait until the people
are more settled.

657 So far I have been writing mainly of the immediate problems of re-settlement.
The Administration is however taking a much wider view and there is a great deal of

177 concepts drawn from the scene of world affairs. While among the
829 Orokaiva, I heard talk about Vietnam, Indonesia, Africa, India. The
political orientation displayed was a mild kind of nationalism, and
a sense of closeness to newly independent non-white states. But the
[203] information, derived from radio broadcasts and speeches by councillors,
introduced an acculturative kind of perspective. Its dissemination is
being actively encouraged by the Australian authorities.

465 Use of money: Before the eruption, money played a very minor role
in village life. It was earned by men who were away for limited
[464] periods working on plantations. Money wages on plantations were, and
are, extremely low; wages for agreement labour in 1962 were, for
instance, $39 per annum for the first year of which $12 is paid out
in monthly installments and the rest at the end of the year. In the
second year, the rate rose to $45.50 p.a. (Howlett, 1965) Urban wages
are a great deal higher than this; most Sivepe men who were absent
on employment worked on urban jobs. At the same time, a regular
income was derived from coffee.

464 Sivepe men were simply not interested in jobs at plantation
rates of pay, nor were they interested in "carrying" jobs for the
435 government even though wages in that case were higher. They were also
indifferent to selling their garden products on the Saiho and Popondetta
438 markets, as there were frequent gluts, prices were low and carrying
goods to market was an unduly arduous task.

Money was used largely to buy goods in the luxury rather than
436 the subsistence sphere. Money was essential for payment of taxes
511 and for a minimum of clothes, often acquired cheaply at jumble sales.
Otherwise, it was used to buy tobacco, food for feasts, kerosene
mainly used for feasting occasions, cartridges for hunting, again for
feasts. Among the larger purchases made were radios, pressure lamps,
bicycles, tools; all these, however, could never be paid for with
current income. One had to depend on special windfalls: a gift from
459 a relative in town, a bride price. Money was not only for spending,
however; it was also for saving. I shall refer to the organisation
556 of corporate saving later; in addition a number of Sivepe men had
savings, of the order of $10-$20, sometimes more, hidden away. This
money was kept for special occasions, but in addition, the very fact
of possessing it was regarded as important. I was once told that
Europeans were powerful because they had money; the Orokaiva could
get power only if they too possessed savings.

If money was definitely highly valued, it was only to a limited
436 extent regarded as a standard of value. If we accept some model such
437 as was suggested by Salisbury (1962), we may say that the Orokaiva
have three spheres of exchange: a subsistence, luxury and ritual
sphere, while bank notes are used for special, often ritual occasions.
[461] In the acquisition of luxury goods of any kind, including money, the
Orokaiva tend to weigh the benefits gained by them against their cost
in time and unpleasantness and against the benefits that can be gained
from other investments. Money is, in general, wanted only if it can

461 be acquired without too much hard labour or threat to status, and only
if its acquisition does not involve foregoing other more highly valued
[436 benefits. Thus, the market has a great elasticity of supply: when
[437 the price seems right to the Orokaiva, supply suddenly emerges from
all directions; when the price is lowered, there is suddenly no supply
[435 at all. The investment of effort is at once directed into different
avenues: subsistence gardening, house-building, a project for the
mission, or a hall for the women's club, or a hunting expedition, or
practises for a dance.

177 184 Comparison with Inonda: In this section I have discussed a small number of acculturation variables as they apply to Sivepe. In general they apply to Inonda also, but there are a few minor differences to be mentioned. The most important of these is that whereas one can speak, in Sivepe, about a certain stage in acculturation reached by the community, it is less easy to do the same for Inonda where, at one end of the scale, we find fairly young men without cash-cropping skills, without school education, and almost entirely aloof from the money economy, while at the other end, one man has become a government driver and would need to be considered, in every respect, as more acculturated than any man of the same age group at Sivepe. It would be wrong to suggest, however, that acculturation in Sivepe was homogeneous; nor that the conservatism of part of Inonda is necessarily a long-term phenomenon.

There is no difference in food habits between the two villages, except that the government driver, having more money, eats better. In respect to clothing, it seemed that in Sivepe young women are a little more prone to cover their breasts than in Inonda; this is of course very much a matter of fashion and can change in months. With regard to housing, changes were actually occurring during the year I was in the field. Houses were being enlarged up to approximately the Sivepe size, and this programme was explained to me as due to the forthcoming feast at which the Seva people were invited and the new floor space was needed to accommodate them. The argument was thus not quite the same as at Sivepe, where the larger houses were thought of as a necessary part of "iji eha," the new age. "Timber" was not used in Inonda, all the walls being of sago. The "timber" fashion never travelled as far East as Inonda; I doubt whether Inonda had enough suitable trees and, furthermore, Inonda did not have the same shortage of sago. Though sago was rare on Inonda lands, the residents had a plentiful supply from other lands belonging to relatives. At Inonda, only some of the people used rubbish holes, whereas the others threw their refuse into the bush. On the other hand, the village was most plentifully and attractively laid out with shrubs and ornamental plants. Inonda, built a special feast house for their visitors from Seva, whereas Sivepe did not do so for their visitors from Togahou. This definitely reflected a non-traditional attitude in Sivepe.

177 436 583 In the attitude to money, and to education, Inonda was clearly split between the traditionalist and the modern faction. The modern faction was, in fact more money-oriented than were the Sivepe people.

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653 a council responsibility. While the rebuilding of the arterial road
from Popondetta and Kokoda was an expensive (and seemingly interminable)
[491] responsibility of the government, the side roads became the council's
responsibility. Similarly, the government built the major hospitals
while the council looked after the village aid posts.

The council's revenue mainly came from taxes--a head tax of
652 $8 for men and $1 for women. This is the only personal tax directly
levied among Orokaiva village people and has replaced the government
[607] head tax. Its collection was not a government but a council responsibility, although defaulters could, of course, be brought before a
magistrate and sentenced to a term in a government jail. Councillors
explained to the villagers that the taxes they paid went to pay for
their roads, aid posts, water supplies, etc. The government hoped
that villagers would be more ready to pay their taxes if they could
see tangible local benefits to justify them. One effect of the system
was that villagers became very interested to see that as much as
possible of the tax money should be spent in their own locality. They
rapidly developed a strong propensity for parish-pump politics. When
I visited Sasembata district first, there was little evidence of any
council projects in the Sasembata wards. People objected to paying
[664] their taxes: they were not getting anything for them. Pressure
resulted in roading improvements and plans for a comprehensive water
supply for the area. Councillors who did not fight successfully for
such causes were liable to miss re-election.

The head tax manifestly acted as a significant economic incentive.
[961] A man who grew no coffee and earned no money could not pay his tax.
Even if a man could not be bothered harvesting all his coffee, he
would certainly harvest enough to pay his tax. Some men who had no
coffee took plantation jobs a month or two before the tax was due. I
noticed this in two cases at Inonda; most of the Sivepe men had coffee
gardens and did not need to work outside. For the first time, tax
[607] defaulters in 1966 were actually jailed for two months. In one village,
Kendata, there were as many as 50 defaulters who fought the police
and ran into the bush; in Sivepe there were four, all without coffee
gardens.

In spite of this tension, people generally supported the ideology
177 of the council: they wanted the "new age" and they wanted the kind
623 of services that were supplied by the council. At the same time it
was never forgotten that behind the tax-gathering councillors stood
the government police, armed and ready to make arrests if the councillors
were resisted or attached, as sometimes happened. Those who did not
pay and tried to escape arrests were judged by the conformists to be
ignorant men, unwisely looking for trouble. On the other hand, people
deeply sympathised with them. People wanted the "new age," but they
did not like the element of compulsion that went with it. They re-elected the councillors who compelled them because they held the
Australian authorities, not the councillors, to be directly responsible.

114 kind enough to show me this study in manuscript, I shall utilise it
here. The general question with which Mr. Waddell is concerned is
464 whether earlier students of societies depending on shifting agriculture
are right in saying that such societies, at least in fertile regions,
[166] have a considerable potential labour surplus. He proceeds to argue
that, in the light of detailed data on the use of time in Sivepe, what
[167] potential labour surplus there might once have been has already been
taken up by labour migration of male adults (which, for his sample, he
puts at 37.8%). Waddell takes issue with Fisk (1962: 465) who defines
economic activity as comprising only the production of food, clothing
and shelter, and argues that, given the existing socio-economic matrix,
all the other activities listed on his time charts (see Table 5)A
should be regarded as economic because they buy status and security.
[412] He also takes issue with Salisbury (1962: 216-20) who proposes that
[461] the change from a stone-to-steel technology in the New Guinea Highlands
has resulted in a saving of two-thirds in the time allocated to specified
axe-using tasks and who concludes from this that a vast potential labour
surplus is thus created. Waddell shows, by a quantitative study of
the allocation of time within activities, that only 38.5% of the time
allocated to an activity is actually given over to the main task, and
even if one includes ancillicar, and other productive tasks, this
raises the proportion to less than 50% of the total time devoted to
that activity. (See Table 17.)B As steel implements are used for only
a portion of productive tasks, they did not, Waddell argues, make a
crucial difference to Orokaiva work patterns.

114 If at the time of Mr. Waddell's study (1964), the potential
labour surplus in Sivepe was small, how was it possible to fit in such
464 new additional activities as the growing of coffee? Mr. Waddell was
461 in an excellent position to discover this as at the time of his survey
seven of 15 households surveyed engaged in cash-cropping; he was therefore
241 able to inquire how this affected the time spent on subsistence food
production. As it happened, the median time spent on subsistence
gardening by the whole sample equalled precisely the median time
spent by the cash-cropping households. (12.6 hours per week, vide
his Table 5:5) It appears from the table I derived from Mr. Waddell
(my Table 17) how the cash-cropping families fit in this extra work:
they spend a great deal less time having rests and meals. While non-
cash croppers allocate only 28.4% of the time within activities to
their main task, the cash-croppers allocate 50.6%. Though Mr. Waddell
gives interesting explanations which account for part of this discrepancy,
even if full allowance is made for these, the fact remains uncontestably
that the cash-croppers simply work harder.

114 Mr. Waddell proceeds to show, by a detailed psychological
assessment of the cash-cropping individuals, that they are indeed the
241 most acculturated and industrious members of the community. This
seems to suggest a considerable heterogeneity in working habits as
177 between the members of the community. The author clearly shows this
heterogeneity to exist as between the sexes and between different age

A,B [See Cat. 116, pp. 209-210, 223-224, respectively--Analyst]

114 groups, and I shall return to this aspect. In addition, however, a considerable weight is placed upon the difference between individual 177 dispositions. I would suggest that in this respect, Mr. Waddell may have put too much confidence in the results of a synchronic study and 241 it is fortunate that another investigator (myself) was able to observe the community at a time when coffee growing had become a general activity. Regrettably, I did not collect quantitative data of the same scope as Mr. Waddell.

177 I shall anticipate later chapters by suggesting here, that differences in level of acculturation in Sivepe never go very deep. Certainly, it is always the same minority of relatively acculturated people who are willing to risk making innovations. This applies to the introduction of European styles of clothing, of radios, kerosene lamps, sending children to school regularly, being baptised, building lavatories and also to the growing of coffee and the planting of the improved Malayan rubber trees. All these things are always done first by a few pioneers, and usually the same pioneers. The basis upon which these people become pioneers is usually a relatively shallow contact with western civilisation. Mostly, the new skills, activities and other introductions they sponsor are not so far ahead of the rest of the community that a swing of local fashion cannot make them universal or almost universal properties. There was no evidence of a widening social and economic gap between acculturated and unacculturated families; there was a gap, but it always remained small (at least, so far). The pioneers tried innovations; the conservatives held back until they saw the innovations succeed, as happened by no means always. Then, one, two or five years later, the conservatives followed the ● [461] progressives. Thus, the activity pattern Waddell observed among the progressives is now much closer to the general norm. The people themselves feel sure that today they work harder and rest less than they used to do. The rest periods I observed were shorter than those measured by Waddell in 1964.

Nonetheless, I would support his main contention that the work 433 day of the cash-croppers of Sivepe today cannot be greatly lengthened, 461 nor productivity greatly increased, unless ways can be found to make work more efficient by technological and other innovations. I have 241 already suggested that a degree of collectivisation would permit the introduction of some labour-saving machinery and better transport 114 facilities. Mr. Waddell makes two further suggestions which need brief discussion.

The first of these is interesting because it questions an assumption that has been almost universally accepted in the literature on shifting cultivation. He argues that the shift from Old to New Sivepe did not actually reduce travelling time from village to garden but in fact lengthened it. He quotes detailed figures to prove this. Village locations, therefore, are not actually being chosen by Orokaiva by criteria of economic rationality, but on wholly non-economic grounds. If this were true, we would need to re-examine whether other societies

433 of shifting cultivators actually do shift their villages to save time
as previous investigators have believed: perhaps, we need to look
461 for entirely different motivations.

241 The question is an interesting one, but Sivepe does not
provide a clinching counter-instance. Mr. Waddell's sample was taken
114 entirely from the Jegase and Timumu clans, while he did not collect
data on travelling time from the Seho clan. Now it is the latter clan
[489] which owns most of the land around New Sivepe, so that their travelling
time is (at least for most families) substantially reduced by the shift.
[423] Furthermore, five of the Jegase households (some of which were formerly
called Timumu) now have gardens very close to New Sivepe. The main sufferers appear to be two families who migrated from Binduta recently, whose land is mainly close to Binduta, and against whom feeling has been building up over the last few years. Mr. Waddell is right, however, in stressing that the major reason for the shift (as given by informants) was the closeness of the new village to the road and the mission station. As such the basis of the shift was practical and ideological but I believe that overall travelling time was reduced if both Seho and Jegase clans are taken into account. Certainly the new village is very close to the land of most of the Sorovi people who settled in Sivepe in 1966.

The second suggestion made by Waddell is that travelling time could be reduced, and thus working efficiency increased by land tenure conversion. He has in mind, I think, the arrangement already found in Papuan returned servicemen's settlements established by the government: where each individual family is settled on its own 20-acre block and grows cocoa and subsistence crops there. Conceivably, when tenure conversion is completed, the Orokaiva might be encouraged to live on individual farm holdings rather than in compact villages. Some planners in the Territory are actually playing with this idea. It has many drawbacks, however: distance from roads, from schools, collapse of social control institutions, abandonment of useful social development projects such as the provision of good water supplies in the resettlement villages.

Comparison with Inonda suggests that as the proportion of adult males lost through migration from Inonda is smaller, and none of these males have left dependents in the village, and furthermore, as the amount of cash cropping work is relatively smaller, the Inonda people are less pressed for time than those of Sivepe. This is borne out by the fact that they are away from the village more frequently as Waddell's statistics show.

An interesting discovery made by Waddell concerns the time
114 allocation of the elderly. He shows that in adulthood the amount of
887 productive work done decreases with age, as does also the amount of
time spent on productive work, but the amount of time devoted to social
activities and contacts outside the village declines even more steeply
after middle age. The Orokaiva has no leisurely old age. Unlike the
[888] Polynesian elder he does not become a sage, remote from economic

TABLE 5

MEAN TIME SPENT PER MAN-WEEK ON SUBSISTENCE ACTIVITIES IN SEASONAL VARIATIONS IN SIVEPE, 1964

Source: Eric Waddell, manuscript

Activity		Periods			
		I: 3 Feb - 3 May	II: 20 Jul - 6 Sept	III: 9 Nov - 3 Jan 1965	Total
Clearing		4.4	2.4	3.3	3.7
Taro:	Planting	1.9	2.8	3.0	2.4
	Maintenance	3.0	3.9	4.5	3.6
	Harvesting	3.4	1.9	3.0	3.0
	Marketing	0.1	-	-	0.1
Sweet Potato:	Planting	-	-	0.1	-
	Harvesting	0.7	1.1	2.4	1.3
	Marketing	0.1	-	-	0.1
Yam:	Planting	0.6	-	-	0.3
	Maintenance	-	-	0.2	0.1
	Harvesting	0.8	0.1	0.6	0.6

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TABLE 5
(Continued)

Minor Crops:	Planting	-	0.1	0.1	0.1
	Maintenance	-	-	0.1	-
	Harvesting	1.0	3.4	1.1	1.6
	Marketing	0.1	-	0.3	0.1
Fencing		-	-	0.2	0.1
Fishing		0.2	-	0.5	0.2
Hunting		0.7	0.8	4.8	1.8
Sago-making		-	1.5	0.4	0.4
Preparation of Tools and Equipment		0.3	-	0.5	0.3
Construction		2.2	1.6	0.6	1.6
TOTAL		19.7	19.8	25.8	21.3

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TABLE 8

ACTIVITY PATTERNS OF HOUSEHOLDS IN SIVEPE AND INONDA
(In Hours Per Man-Week)

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Source: Weddell and Krinks, 1968: 97 and 132

Note: As virtually all Sivepe households were involved in cash-cropping by 1966-1967, the figures quoted here for Sivepe show the mean activity pattern for cash-cropping households.

Activity	Mean Number of Hours Per Adult Per Week	
	Sivepe	Inonda
Clearing	3.3	2.9
Subsistence Gardening	13.2	11.7
Other Subsistence Food Production	3.0	7.5
Other Subsistence Activities	1.4	3.4
Cash Cropping	2.3	1.0
Paid Work	1.0	2.7
Household	6.1	3.8
Social Obligations	3.3	4.2
Sick	1.0	1.6
External Agencies	7.0	3.2
Other	0.9	1.5
TOTAL	42.3	43.5

TABLE 17

SIVEPE: THE ALLOCATION OF TIME WITHIN ACTIVITIES A DETAILED ANALYSIS OF 28 OCCASIONS COVERING 19 INDIVIDUALS AND A BREAKDOWN ACCORDING TO AGE; SEX AND CASH CROPPING STATUS (In minutes)

Source: Waddell and Krinks 1968: 113

		Travel	Rest and Meals	Main Task	Ancillary Tasks	Other Tasks	Cooking	Washing	Total
Whole Sample	Mean Duration	42	72	102	15	14	17	3	264
(28)*	%	15.8	27.4	38.5	5.7	5.1	6.3	1.2	100
Males	Mean Duration	41	74	118	26	12	-	-	272
(14)	%	15.1	27.4	43.5	9.5	4.3	-	0.1	99.9
Females	Mean Duration	42	70	85	4	15	33	6	257
(14)	%	16.5	27.4	33.2	1.6	5.9	13.0	2.4	100
Cash Cropper	Mean Duration	32	36	106	14	16	5	2	210
(16)	%	15.1	17.0	50.6	6.5	7.8	2.3	0.8	100.1
Non Cash Cropper	Mean Duration	55	121	96	17	10	33	6	336
(12)	%	16.4	36.0	28.4	5.0	2.9	9.7	1.6	100
15-24	Mean Duration	21	181	49	12	-	126	28	418
(2)	%	5.0	43.5	11.7	2.9	-	30.2	6.8	100.1
25-34	Mean Duration	24	29	101	1	12	10	3	179
(8)	%	13.4	16.1	56.3	0.6	6.6	5.3	1.7	100

TABLE 17
(Continued)

		Travel	Rest and Meals	Main Task	Ancillary Tasks	Other Tasks	Cooking	Washing	Total
35-44	Mean Duration	33	53	132	36	1	6	-	259
(8)	%	12.6	20.3	50.7	13.8	-	2.2	-	99.6
45-54	Mean Duration	72	69	99	10	31	10	1	292
(9)	%	24.5	23.6	34.0	3.5	10.6	3.6	-	99.8
55+	Mean Duration	30	390	-	10	-	-	-	430
(1)	%	7.0	96.7	-	2.3	-	---	-	100

* Indicates number of man-instances observed.

TABLE 18

SIVEPE: THE DIVISION OF LABOUR BY AGE
(In Hours Per Week)

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512

Source: Waddell and Krinks 1968: 104

Age Group	15-24	25-34	35-44	45-54	55+
No. of Individuals	2M, 5F	4M, 7F	4M, 1F	5M, 5F	2M
Total Weeks Present	105.9	188.0	115.3	252.6	51.1
SUBSISTENCE					
Productive:					
Clearing	2.3	2.7	5.2	3.8	5.8
Subsistence gardening	7.9	13.8	13.5	14.9	12.3
Other subsistence food production	1.8	2.6	5.4	1.6	1.4
Other subsistence activities	1.1	0.8	4.1	2.1	1.6
Household	3.7	8.7	2.9	5.6	0.4
Non-productive:					
Social obligations	4.1	3.2	4.7	2.9	1.8
EXTERNAL					
Productive:					
Cash cropping	0.4	1.7	3.1	1.5	0.1
Paid work	6.5	0.5	0.9	0.9	-
Non-productive:					
External agencies	5.7	6.9	6.9	5.1	2.6
Sickness	1.8	1.2	0.8	0.3	0.7
Miscellaneous	2.4	1.0	0.8	0.2	-
TOTAL	37.7	43.1	48.5	39.3	26.6
Productive time*	62.9	71.5	72.7	78.1	80.9
Subsistence time*	55.4	73.8	74.1	78.4	87.3
Days temporarily absent*	10.3	1.3	8.5	6.5	5.3

* As a percentage of total survey time.

THE SELF AND THE PRODUCT:

Concepts of Work in Comparative Perspective

ERIK SCHWIMMER

Introduction[1]

121 The cross-cultural comparison of concepts is part of the anthropologist's trade. Whatever the concept, we find ourselves asking whether anything resembling it exists among the people we study. The concept presents itself very often in English: law, government, religion, friendship, reciprocity. A school of thought often arises which holds that the concept is not universal but confined to a limited set of cultures, inevitably including our own. Such a suggestion is usually opposed by others who propose definitions of the concepts so as to make them look universal. The concept of *work* is clearly of that type.

There are good reasons for thinking that this concept is a product of 18th century Europe and the industrial revolution. Work as a concept is based on the assumption that, from a certain viewpoint, all economically useful activities are fully comparable by a yardstick transcending their diversity, in other words, that labour has become a commodity and that the technical and administrative direction of that labour has become part of the same kind of commodity. This is a perspective with which we have become familiar through Mandeville, political economy and Marxism (Baudrillard 1973; [461] [177] Dumont 1977). On the other hand, it has been shown that the Ancient Greeks had no corresponding concept (Vernant 1965) and it is not difficult to show that the Melanesians did not have it either, until they came into contact with western capitalism. One of my Orokaiva informants was categorical on this point: "The people of olden times," he said, "did not take up work (*pure*) for it was only Jesus Christ who gave them work (*pure*) to take up."[2]

On the other hand, some very prominent authors have presented 'work' as a universal concept. One of them was Karl Marx to whom the concept 'work' was just as much a universal as man's supposedly perpetual 'transformation of nature to human ends'. In his theory all modes of production have their 'labour force'; what he opposes is

Works of Art

121 To test this possibility, let us consider a major subculture of capitalism, namely that of literature, music and the arts. Here, work is manifestly being converted into exchange rather than use values. Works of art today, even if 'made for' or 'dedicated to' particular persons, are not really made primarily for their use or personal edification, but rather a kind of communication between the maker and the world or universe. Unlike the craftsmen of Ancient Greece, they do not (except reluctantly) produce work after a design imposed by their paymasters; they do not subscribe to any 'alienating' reduction of their work to 'average labour'. Moreover, on the juridical level, they have continuing rights in the product of their labour even if they 'sell' it – rights that are codified and enforceable in law. They live by the market value – the exchange value – of this labour. Clearly we have here a system that combines exchange value with identification.

This configuration: identification + exchange value is not, of course, unproblematical. What is a fair price for a poem or painting? In practice, this depends entirely on reputation. In other words, it is normal to spend several years in a garret until one has acquired sufficient reputation to be able to claim a rate of remuneration not less than, say, the basic wage for the 'socially necessary labour time' that goes into one's poems or paintings.

There is a vast perceived difference between the various value estimations: the exchange value (very low), the use value (very high if the work is 'good') and the value based on socially necessary labour time, i.e. what the poet or painter would receive if he became a 'government artist' in a Marxist-controlled economy.

If the artist wishes to avoid starving in a garret, he can always take a 'job', i.e. sell his labour not as an artist but as a teacher or clerk or carpenter or whatever. This labour will in his estimation have much less use value than his art, but it has far greater exchange value. He will tend to feel alienated from his 'job' whatever it is [461] but identified with the art which is his 'real' work. Sedentarized Indian hunters in Canada and urbanized Orokaiva taro-cultivators see a rather similar relationship between their 'jobs' and their 'real work'[8] (cf. also Cohen, this volume).

Towards a Melanesian Definition of 'Work'

The present enquiry concentrates on the analysis of concepts of work found in a specific society, the Orokaiva of the Northern Province of Papua New Guinea. These concepts, described as an indigenous semiotic system, are presented with reference to two

121 between the other two. Their existence is known, but some will not
see their cognitive genesis. They tend to arise as they are logically
implied by the two dominant ones; anyone who does not like 1 and
2 cannot help but think of 3 or 4 or both.

Identification in the Creation of Use Values

● 461 When Councillor Colin said that '*pure ari*' did not begin until Jesus
Christ (i.e. people did not 'work' before that time) he ignored that
pure ari in its primary meaning stands for 'to garden' and *pure* is a
garden. From an empirical viewpoint we know exactly what goes
on in a Sivepe garden, as Waddell has carefully measured it. The
daily visit to the garden described by informants as *pure ali* takes
a mean of 265 minutes of which 'main task' and 'ancillary tasks'
take up in all 44.2% (Waddell and Krinks 1968: 113). The rest is
devoted to travel, rest, meals, cooking, washing, other tasks. People
always go to the *pure*; they do what they need to do. The amount
of 'work' they have does not determine how long they stay. Sometimes
they 'work' very hard, sometimes hardly at all.

The gardening tasks are done at a moderate pace which is
pleasurable. Rushing and heavy burdens are avoided when possible,
but when they are necessary they are classified as 'toil' (*pure*
[805] *galha*) and people rest later to make up for it. The only time
measures used are: early morning, midday, afternoon (meaning:
time to go home) and evening-night (meaning: after supper).
[241] Though gardens have a principal crop, mostly taro, the subsidiary
crops, ornamental trees, garden house etc. are charmingly landscaped
so that the garden is in a sense an artistic creation
(Malinowski 1935; F. Panoff 1969). Whether rows are regular and
what is the general standard of husbandry are very much
[829] individual matters. It is said that by looking at a person's garden
one can read his or her character. Among the Orokaiva the girls
[581] are said always to look at a boy's garden before marrying him. De
Coppet (1976) reports the same for the Are'are of Malaita, except
that it is the girls who are more under scrutiny. The criteria would
partly be the style of the garden, showing a pattern of mind, but
also and largely the size of the garden, the size and the health of
the plants, the quality of the varieties.

241 One could keep on with such description for a long time without
coming closer to defining garden work as a concept. Myths
773 and rites prescribe details of the gardening cycle for each of the
824 principal crops while at the same time establishing identification
between grower and crop: taro is a mother; a mother Taro is
invoked; married women think of their taro as their children. The

241 Time is therefore a highly inappropriate measure of useful activity in Orokaiva gardens. Whether *simbari* is effective or ineffective does 461 not depend just on the time spent. It depends on the warding off of sorcery and hence on ensuring one has no dangerous enemies. It depends on harmony in the family. It depends on avoiding straying pigs, not just by building fences but by being the kind of person into whose garden one does not want one's pigs to stray. The anthropological observer notices a certain selectiveness in Orokaiva pigs . . .

554 A great man, or a manager, is not always a gardener. He may be a sorcerer. But if he is a gardener he is a great gardener. He 461 accomplishes his garden as a craftsman accomplishes a model, an ΕΙΔΟΣ, or as Orokaiva say, an *ove*. His image of the world is not dark like that of Hesiod or of Adam's curse. An Orokaiva inform- [773] ant once recorded for me on tape his version of the relevant [177] portion of Genesis:

> [539] "You will bear children, lift string bags, draw water; you will do all those things and be loaded down with sorrow, so He said; and then He spoke to her husband Adam thus: You will take the axe, cut the second growth, chop down the trees, lop off the branches. In the hot sun, in sorrow, with pain all over your body, you will labour hard." He said.
>
> He thereupon determined that Eve and Adam spoke thus: "This is the way we shall all wish to act on earth: our bodies will be painful from work; and the women as well as the men will be in pain and sorrow from hard work. And as our food will be prepared and ready we stay to eat. All right we did not know that God would not let us have what we had taken and eaten."
>
> Therefore God said to them: "Long will be the day of sorrow when you have sorrow, but when you have happy days you will be happy." So he said. Therefore we shall live in this way from now onwards . . ."

This interpretation is not, I believe, merely garbled. It is a clear message that the Orokaiva just will not understand why, after working hard in the sun, they should afterwards eat their bread or taro in sorrow. To them, this is not a mere question of how they would feel, but a moral matter. Whoever wrote the original of this text was obviously lacking in respect for bread or targo.

Daniel de Coppet (1976) rightly suggested gardening in Melanesia was a religious act, like a sacrament, as is also eating the produce. Whatever pain there may be is sacramentally transformed. Man feels his unity with the Taro goddess and also with the garden and the crop.

Alienation in the Creation of Exchange Value

435 In the Orokaiva village, exchange value may enter in four ways:
436 through cash crops, outside gifts, labour and business. The two
latter categories are recent. Whereas wages were an insignificant
[434] item in most villages during my 1966–67 study, a recent income
survey (Newton 1978) in a typical village showed an overall income
of about K675 per household, made up of coffee returns 35%, wages
37%, migrant gifts 12%.

[776] We have no special studies of work concepts in this sector, but some general indications. It may seem surprising that Jesus Christ was nominated as the originating deity of monetary compensation for work, but New Guineans widely regard him as originator of European wealth and therefore also, not illogically, of the concept of money and exchange value. The idea of converting labour into money, in itself, greatly interests New Guineans. Thus Daniel de Coppet shows that in the Are'are social system there is but one traditional method of converting food and services into shell money, viz by acting as an undertaker. For this reason the office of undertaker was a highly valued one. Thus Councillor Colin might well genuinely revere a deity or culture hero who instituted the full convertibility of labour into money.

461 The term *pure ari* is appropriate to describe the white man's
labour if for no other reason than that a 'job' just like the *pure* is
435 a place where one spends the day. The new dispensation has, sure
enough, its own conflict (*isoro*) and mode of conflict resolution.
[694] Councillor Colin brings this out by his example of the policeman
who puts village men into handcuffs and takes them off to court.
[754] In such a case it was the task of the sorcerer to ensure that the
men would escape conviction and be set free again.[20] Virtue, in
such a system, is largely a matter of keeping out of trouble, but
also it is a matter of not squandering the money but reserving
some – ideally half – of it to serve the needs of kinsmen and
fellow villagers: contributions to ceremonial payments, feasts,
travel expenses etc. Briefly, wages tend to be converted into
political power.

435 No great value was usually attached to conversion to western
436 commodities, except where these became valued prestations. Thus,
when transistor radios became valued prestations, they began to
appear in large quantities in the villages and were mostly paid for
by absentee workers.

[169] The subsistence/feasting duality continues in this system in that some money is needed for the former but a labourer would have little status in his home village if he did not set aside something for

435 the latter. Also, migrants normally leave behind a family member
436 with the task of looking after the land (*simbari*) in a technical,
magical and juridical sense. Often he also leaves behind a wife for
167 whom he is saving brideprice but who meanwhile must be looked
after by his relatives. Money sent home therefore covers not only
feasting contributions but also the function of *simbari*. This is
not because village people would not perform such services free
of charge but because, when a man earns money, those who help
him earn that money are entitled to their share.

If we look only at the relations of production migrants have in
169 their jobs, they seem totally 'alienated' (cf. Parkin, this volume).
461 Not only have they no control whatever over the product of their
labour but this product lies entirely outside their conceptual
[571] universe. Yet these migrants avoid proletarianization in the full
sense because they continue to have a stake in the village
environment, which has its own economic, political and ideological
base.

435 Our remarks above apply similarly to the village cash-crop sector.
With the exception of coconuts, the use value Orokaiva see in
European cash-crops is either very limited or non-existent. Coffee
and cocoa are classified as non-foods, rubber latex as an unusable
substance. Even the coconut, though an important food when
fresh, represents no use value to Orokaiva when dried into copra.

This lack of perceived utility has not stopped cultivation of
these crops on village land nor their processing by village-purchased
[245] machinery. Everyone irrespective of age is growing coffee. Those
who are pressed for time tend to give priority to coffee and to
partially replace their plantings of taro with 'German taro' –
less valued but less laborious.[21]

Growing coffee is not considered pleasurable like growing taro.
245 When suggesting to an informant that coffee trees have a sweet smell,
824 I was firmly told: "*We* think the smell is dreadful". Such feelings
go to show that the division between the spheres of use value and
461 exchange value is not purely analytical but corresponds to a conceptual boundary between two models of life and work, and that
Orokaiva try to keep this boundary clear. Coffee is grown because
it takes far less time than it would to grow subsistence crops for
the market, but the grower feels alienated from it while he feels
[438] identified with the subsistence crops. A small quantity of subsistence
crops – surplus to requirements – is in fact sold in local markets
for consumption by local people, but growers take the same care
with them and regard them in the same way as the food they eat.

461 It is paradoxical that the work represented as introduced by Jesus
[177]

461 Christ does not, like traditional work, have a palpable virtue such
177 that the good man will succeed at it while the bad man will fail. Any-
one at all can succeed at New Guinea wage labour – *wok mani*
tasol as it is called in Neo-Melanesian.[22] Yet this money, when it
[436] enters the village gift exchange circuit, will establish claims to
status on an equal footing with wealth available only to cultivators
with real traditional power (*ivo*).

525 It is this anomaly that appears to have been coped with by the
New Guinea gambling system. The game called *laki* (lucky) is
777 supposedly a game of pure chance but if chance is with you it
shows that a powerful ancestor is supporting you. Your luck at
the game shows your spiritual resources just as luck at gardening
shows this. It is the people with weaker ancestors who lose.
Medicines are also used to improve luck, but they are secondary.
Evidence for supranatural intervention is that the results of the
game, instead of being random as one would expect from the rules,
[373] always favour the same individuals. Whether these individuals
play honestly I cannot tell, as the game goes on day and night
and only a very weak lantern is used at night, my tilley lamp
being considered unsuitable.

Laki is played by Orokaiva especially when the coffee proceeds
have just been distributed and generally whenever a large number
of community members receive money from non-traditional
sources simultaneously. Play may continue for several days without
interruption, until all the money is cleaned up by a single winner.
This redistribution restores the traditional status pattern disturbed
by the culture hero Jesus Christ.

525 Playing cards are outlawed in Papua New Guinea; nobody is
allowed legally to possess them or to import them. Though this
177 legislation was a response to popular pressure, it was in the churches
that the pressure was in fact generated. It is thus hoped that New
Guineans will eventually allocate status on the basis of the mere
[554] possession of money. The total inefficacy of this government
legislation shows that New Guineans have great difficulty in
[461] accepting this secularized concept of work and status. Magico-
religious tests have the function of hallowing money. They also
assert the supremacy of traditional work concepts over modern
ones.

Alienation in the Creation of Use Values

121 It is especially the French Marxist africanists such as Terray,
Meillassoux, Auge,[23] who have alerted us to the prevalence of
exploitation in tribal or lineage-societies where anthropologists

171 of 5% of male population.[24]

These people were alienated by the criterion we chose because they had been working for someone who refused them what they considered their proper reward – in other words, the right to the product of their labour. At the same time, we note that the phenomenon described by Panoff was marginal: the other 95% of the male population were not alienated.

It is my impression that there are still other alienated categories in Melanesia, especially among defeated groups or clans who lost their land after a war and are reduced to the status of wanderers or, again, who remained on their land but were constantly at the mercy of marauders. When I discussed such cases, I was told by several informants from different villages independently that there were certain weak groups with whom in olden times they practised no exchanges but had only relations of warfare. Such groups evidently possessed some valued resources – not only women but also feathers and other forest products, for instance, but they lay outside the circle where moral principles applied (cf. Williams 1930).[25]

121 The theoretical importance of such cases may be far greater than their statistical importance. These are, after all, the cases projected by Hobbes in his model of the stateless society. Anthropologists have been much concerned to prove Hobbes wrong, but this concern should not blind us to that minority of situations where he may well have been right. There is not, to my knowledge, any Melanesian ideology which validates and elaborates the Hobbesian model, nor the Nietzschian model[26] that gives full weight to the principle of reciprocity while condemning it as a weakness to be transcended. But is even a Melanesian Nietzsche completely inconceivable?

Identification in the Creation of Exchange Values

461 Our discussion of the culture hero Jesus Christ was necessarily
177 incomplete. For he did not institute merely payment for labour –
994 a real gift to man but, as we have seen, somewhat limited in scope, but he also gave to the white man all his immeasurable wealth and power. But this wealth and power did precisely not, in the New Guineans' estimation, come to the European by his own wage labour. It came by methods New Guineans did not at once understand. This whole cargo ideology is too well documented to need restatement here, but any study of Melanesian work would be quite incomplete unless it included the category of cargo work, i.e. work to obtain cargo.

Conclusion

This paper has been an exercise in semiotic anthropology. Semiotics has always been a part of anthropology (cf. Schwimmer 1977b), but we are becoming more conscious about it and borrowing some methods. We therefore set up a domain, consisting of two sets of oppositions (use value/exchange value; identification/alienation) which seemed to be in some need of clarification. We broke the domain down to its modalities and as a result, I hope, clarified a number of Orokaiva concepts of 'work' – all a little unexpected, probably, and certainly not clear to myself until I began analysis in the form described here. Moreover, the two oppositions that formed the frame have become a little clearer too.

Semiotic anthropology has a limited role, but this role is precisely what has been attempted here: clarifying concepts. I might have made up an abstract model from the modalities and the categories but refrained as it would have added little. I have tried to make the connections visible: semiotics does not compose master schemes, it decomposes them.

Notes

101 1. Fieldwork done in the Northern Province of Papua New Guinea (1966–67,
122 1970, 1973) and used as basis for the present discussion was supported
by grants from the Canada Council.

2. This statement was made to me by Councillor Colin in a taped oration
461 held in Torogota in 1966. His words: *'Iji aramiko ambo ainge eaora. Amina*
177 *pure mo umbae. Amora pure re Keriso na ikena umbasi ea avo.'*

3. Melanesian time allocation studies have recently been the subject of a
114 detailed economic analysis (Kirkpatrick 1977). It is of interest that the field studies of time allocation which were given the highest "subjective rating" (ibid. Table 6.1) were Waddell (1972) and Waddell and Krinks (1968). The latter study was conducted in the Orokaiva villages of Ionda and Sivepe, where I myself did intensive research some years later, on a different subject. As I have already published a detailed commentary on the Waddell and Krinks study (Schwimmer 1969: 144–152), I say little about it here. It is, however, highly relevant to a conceptual study such as the present one.

121 4. M. Panoff reports that *kuma*, in the sense of subsistence activities, took up an average of four hours per day among the Maenge. He mentions no cash crops. Kirkpatrick's statistics (1977, Table 6.3) show that the mean time spent per man on all agricultural tasks in nine Melanesian villages is about 22 hours per week. One may thus assume that Panoff's figure refers to all tasks making up agricultural activity in Melanesian time allocation studies. But what is here meant by 'activity'? As we show in the present article, it includes not only the main and ancillary agricultural

121 tasks but also travel, rest, meals and miscellaneous "other tasks" – the most mentionable of which are cooking and washing. The phrase "dépense d'énergie" must thus be taken very broadly.

5. The present author's knowledge of Greek antiquity is at undergraduate level. From an anthropological viewpoint, an interesting general discussion of Hesiod will be found in Jaeger (1946). But see also Vernant (1965: 19–47) and Detienne and Vernant (1974: 59–124).
6. The translation of ΔΙΚΗ as 'justice' obscures an interesting difference made in Greek between two kinds of justice. *Themis* (ΘΕΜΙΣ) justice as dispensed by the early kinds and nobles whereas ΔΙΚΗ appears to be a system of dispute settlement by compensation payments to the injured party. The fundamental meaning of ΔΙΚΗ is 'due share' (Jaeger 1946: 103). ΥΒΡΙΣ would then be to refuse compensation and seek justice by force.
7. Vernant's explanation (p. 222) of this classification is as follows: "Dans la perspective de la valeur d'usage, le produit n'est pas vu en fonction du travail humain qui l'a créé; comme travail cristallisé; c'est au contraire le travail qui est vu en fonction du produit, comme propre à satisfaire tel besoin de l'usager . . . Marx écrit, de façon frappante, qu'en qualité de valeur d'échange, la marchandise n'est plus envisagée au point de vue du service qu'elle rend mais du service qui lui a été rendu par cela qu'elle a été produite." (*Critique de l'Economie pollitique*, p. 32.)

121 461 824
8. It has been objected that a work of art differs from a taro in that the former is a statement about patterns in the universe while the latter is not. My own view of taros, however, is that in the sense of Hjelmslev, they ought to be regarded as sign as well as substance; as signs, which they are whenever handled ritually, they do contain statements about the universe. On the semiotic issues involved see Hjelmslev (1953), Schwimmer (1977a, 1977b).

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9. For relevant ethnographic data on Orokaiva, see Williams (1928, 1930); Waddell and Krinks (1968); Schwimmer (1967, 1969, 1973, 1974a, 1979a). For specifically semiotic investigations on Orokaiva, see Schwimmer (1974b, 1977a, 1979a, 1979b.)

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10. Searle-Chatterjee demonstrates that group identity among the polluted caste groups remains firm and positive. It appears to be threatened only by the attempted suppression of the notion of caste by the central government. If this should ever succeed, caste identity would be threatened, because public belief in its toughness, hotbloodedness, honour etc. would be lost.
11. While I have learnt a good deal from Parry's fascinating analysis of the Mahabrahmans, I wish to dissociate myself from Parry's comments on Louis Dumont, as it would not be very difficult to reconcile Parry's findings with Dumont's theory.
12. I wish to acknowledge a debt to Mr. Edwin Ardener who suggested this argument to me during conversation at the York conference. He is not responsible, of course, for what I did with it. A rather similar point is made by Dumont (1977: 118, 182).

245 appears to be the standard response to lack of time, rather than foregoing coffee.

177 22. On New Guinea concepts of paid labour and the yield of such labour I learned a great deal from Cloutier (1975–1978).

● 961 121 23. Auge's material on the rich who were inevitably suspected of being zombie masters (1975) is a good illustration of our theme. But on this same phenomenon, see also Ardener (1970).

171 24. For a somewhat similar analysis of suicide, this time in Polynesia, see Firth (1967, Ch. 5) on suicide and risk taking in Tikopia.

25. For a further example of 'exploitation' of the defeated see Meggitt (1977: 25–26).

121 26. In *Zur Genealogie der Moral*, Nietzsche (1954: 761–900) offers a detailed discussion of the principle of reciprocity, concerning which he held views rather radically opposed to those of Marcel Mauss. He regarded it as a delusion to be eradicated. Orokaiva likewise regard it as a delusion if practised outside the 'security circle' (see Schwimmer 1979a).

472 474 27. This argument, and indeed this entire essay, is close in orientation to Dumont (1977) which can be read as an attempt to set limits on economism in anthropology and elsewhere. We do not question the importance of economics but the delimitation of economics as a separate domain.

References

113 Ardener, Edwin, 1970. Witchcraft economics and the continuity of belief. In *Witchcraft confessions and accusations*, Mary Douglas (ed.). A.S.A. Monographs 9. London: Tavistock Publ.

Auge, Marc. 1975. *Théorie des pouvoirs et idéologie.* Paris: Hermann.

Baudrillard, Jean. 1973. *Le miroir de la production.* Paris: Castermann.

Belshaw, Cyril S. 1949. *Economic aspects of culture contact in Eastern Melanesia.* Unpub. PhD thesis, University of London.

Burridge, K.O.L. 1969. *Tangu traditions.* Oxford University Press.

Cloutier, Guy. 1975–1978. Field reports on migration, urbanisation, authority patterns, economy, education, the supranatural, spirit beings, Christianity at Lae, Papua New Guinea. Manuscript.

De Coppet, Daniel, 1976. *Jardins de vie, jardins de mort en Mélanésie, Traverses* 5/6, 166–177.

Detienne, Marcel et Jean-Pierre Vernant. 1974. *Les ruses de l'intelligence. la mètis des Grecs.* Paris: Flammarion.

Dumont, Louis. 1977. *Homo aequalis.* Paris: NRF.

Eco, Umberto. 1972. *La structure absente.* Paris: Mercure de France.

Firth, Raymond, 1967. *Tikopia ritual and belief.* London: Allen and Unwin.

Godelier, Maurice. 1973. *Horizon, trajets marxistes en anthropologie.* Paris: Maspero.

Hjelmslev, L. 1953. *Prolegomena to a theory of language.* Madison: University of Wisconsin Press.

Jaeger, Werner. 1946. *Paideia: the ideals of Greek culture,* vol. I. Oxford: